

# 2 electrical



## circuit breakers

Circuit breakers protect your home's electrical system from power failure.

The electrical wiring in your home is protected by circuit breakers. Circuit breakers, as a safety feature, trip if there's an excessive load on a given circuit. Overloading a circuit when using too many appliances at one time, having a defective cord, or starting a large electric motor usually causes electrical failures.



*The electrical panel box receives its electrical power from a cable called the electrical service entrance. Don't tamper with this cable.*

### care and maintenance

Follow these care and maintenance suggestions for your home's electrical system.

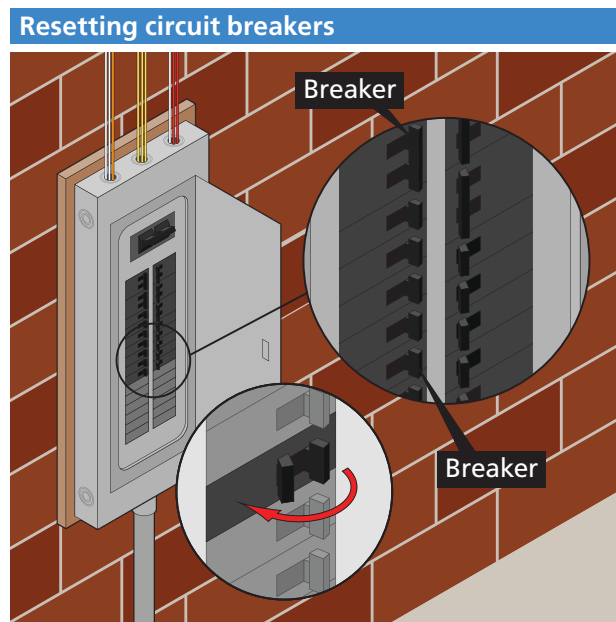
#### circuit breakers

If an outlet or light fixture fails to operate, check your circuit breaker panel before calling for electrical repairs. If the circuit breaker has automatically switched to OFF, either the circuit overloaded or a short circuit occurred.

#### If the circuit breaker has switched to OFF

1. Correct the cause of the circuit break before resetting the circuit breaker. Causes could be an excessive number of appliances or lamps plugged into any one outlet, frayed cords, and/or frayed connections.
2. Reset the breaker by pushing the switch all the way to OFF and then back to the ON position.

3. Repeat the steps above if any red shows near the breaker switch.



*Excess dust on the circuit breakers may also cause them to trip. Use a can of compressed air to blow dust out of the breaker box.*

#### If a circuit breaker trips frequently

Contact a reliable electrical contractor to find out if additional wiring is needed to meet your needs. Ordinarily, you can plug small appliances into any electrical outlet without overloading the circuit. However, if you use large appliances, such as electric space heaters, or several small appliances on the same circuit, you can overload the circuit and trip the breaker.

#### If you lose power in one area of your home

Attempt to locate the cause of the failure before using the circuit breaker to restore the current. If you can't locate the cause of the failure, call a state-licensed electrician or your home builder.

You can reset a circuit breaker by flipping the appropriate switch all the way to OFF and then back to the ON position.



*Never let anyone other than a licensed electrician repair or alter the wiring or electrical system in your home.*



*Some changes may require a permit. Poor electrical maintenance could lead to serious damage to your home and property or injury to you and your family.*

### lighting fixtures

Your warranty doesn't cover any damages or short circuits caused by tampering with lighting fixtures, so don't attach, detach, or tamper with lighting fixtures. Hire a competent electrician to perform any work on fixtures.



*Protect children from outlets and wiring. To protect small children, use outlet covers with childproof devices.*

See also *Electrical troubleshooting* (p. 14).

See also *GFCIs and AFCIs* (p. 15).

## electrical troubleshooting

To save yourself time, money, and frustration, refer to this checklist before you report electrical problems.

### if an outlet won't work

Make sure the wall switch isn't in the OFF position. If the wall switch is in the ON position, make sure the circuit breaker has not been tripped. If it has been tripped, reset it.

### if a ceiling light or lamp won't turn on

Check the lightbulb. If the bulb is good, check the circuit breaker. Also, check for wall switches in the OFF position.

### if the disposal won't operate

Push the reset button located on the disposal. If the disposal and dishwasher are designed to plug into an outlet, as opposed to being directly wired, make sure that the disposal and dishwasher are plugged into the right outlets. Also, check the circuit breaker.

### if an electric water heater won't function

Check the circuit breaker. If the breaker hasn't been tripped, turn the power off, and then push the reset button located under the water heater access cover.

### if the oven won't heat

Check the owner's manual to make sure you're operating the time controls properly. Also, check the circuit breaker.

**if the bath or utility exhaust fan won't run**

If the fan doesn't make a humming noise, the problem is probably electrical, so call an approved electrician for service. If there's any movement or humming noise, the problem is probably with the fan unit, so call the manufacturer for service.

**if an outlet sparks when you plug in an appliance**

Make sure the appliance is off before plugging it in. If the outlet still sparks, try another outlet. If you get sparks from a second outlet, the problem is probably with the appliance cord.

**if a switch or outlet is hot to the touch**

Trip the appropriate circuit breaker immediately, and contact an approved electrician for service.



*Sparks from wall switches should be checked by an approved electrician.*

See also *Circuit breakers* (p. 13).

## GFCIs and AFCIs

Special circuit breakers in your home protect you and your family from fire, shock, and electrocution.

**GFCIs**

Ground Fault Circuit Interrupters (GFCIs) are located either in the electrical panel box or at outlets. They're a special type of breaker used for circuits that supply bathrooms, kitchens, laundry rooms, garages, and outdoor outlets.

GFCIs detect the slightest amount of unwanted electrical current flow, and trip immediately, cutting power to the circuit and protecting the person using the outlet. Without GFCI protection, a person could be shocked or electrocuted.

GFCIs are installed in your kitchen, bathrooms, garage, and at outdoor outlets – places that often get wet. If your power fails in just one of these areas, it probably means that the GFCI has been tripped.

GFCI circuit breakers are located on your circuit panel in the electrical panel box and have an extra button marked TEST. GFCI outlets look like ordinary outlets with the addition of two small buttons marked TEST and RESET.

### AFCIs

In addition to GFCIs, some municipalities may require another type of electrical protection called Arc Fault Circuit Interrupters (AFCIs). AFCIs are designed to protect the electrical system from fire and are installed on circuits that service bedrooms.

AFCIs detect dangerous arcing in a circuit, extension cord, or appliance that could cause a fire. Arcing typically occurs because of loose connections along the circuit, cords pinched by furniture, and cables in contact with vibrating machinery. When arcing is detected, the AFCI trips immediately, cutting electricity to the circuit.

### care and maintenance

Follow these care and maintenance suggestions for your GFCIs and AFCIs.

### if a GFCI or AFCI trips

GFCI outlets are highly sensitive to stray voltage and to moisture in the air. If an appliance that's plugged into a GFCI outlet short-circuits, the GFCI will trip, cutting off power to the related outlets. On a GFCI outlet, push the RESET button on the center of the outlet to reset it. Reset a tripped GFCI or AFCI circuit breaker in the electrical panel box as you would reset a regular circuit breaker.



*GFCI outlets aren't designed to carry the amperage for multiple hair dryers or major appliances, such as electric grills.*

### testing GFCIs

A faulty GFCI can result in serious harm to you or your family if an accident occurs. Test each GFCI outlet once a month by following these steps:

1. Push the TEST button on the GFCI outlet. The GFCI should trip, resulting in power loss to the outlet.
2. Reset the GFCI, which should restore power to the outlet.
3. If the GFCI doesn't reset, try using a can of compressed air to blow out any excess dust. If it still doesn't reset or it doesn't trip, have it replaced by a professional electrician.

GFCI outlet

