Smiley Electric

Licensed electrician · Portland, Oregon · Oregon CCB #227116

FREE HOMEOWNER GUIDE

Why does my water heater breaker keep tripping?

The usual cause

An electric water heater runs on its own dedicated 240-volt circuit, and when that breaker keeps tripping the cause is almost always a heating element that has shorted to ground, a failed thermostat, or a problem in the breaker or wiring itself. Reset it once. If it trips again, stop resetting it and get it diagnosed, because you are dealing with 240 volts a few inches from a tank of water.

A breaker that trips the instant you reset it is reading a dead short, and repeatedly forcing it back on will not fix anything. It will only cook the connection. The good news is the failure is usually a specific, replaceable part, and it is straightforward to track down with a meter.

A heating element shorted to ground

This is the most common one. An electric water heater has two elements, upper and lower, that screw into the tank and sit in the water. When an element's metal sheath cracks and water reaches the wire inside, it shorts straight to the grounded tank, and the breaker trips immediately to protect you. An electrician confirms it by disconnecting the element and reading its resistance to the tank with a meter. A good element reads open to ground, a failed one reads a short.

- [ ] Trips instantly on reset, the signature of a hard short to ground
- [ ] Often follows a run of lukewarm or not-enough hot water as one element dies
- [ ] The lower element usually goes first, since sediment builds up around it

A stuck thermostat or high-limit trip

Behind the access panels, each element has a thermostat, and above the upper one sits a high-limit safety cutoff, the little red reset button (the ECO, for energy cut-off). A thermostat that sticks closed keeps an element energized past its set point, the water overheats, and the safety cutoff or the breaker trips to stop it. If you find the red button popped, something drove the water too hot, and simply pressing it back in without finding the reason will just send you around the same loop.

- [ ] The red high-limit reset button has popped out
- [ ] Water comes out scalding hot before the trip
- [ ] A thermostat stuck closed, or wired or seated wrong after a past repair

Breaker, wiring, and connection faults

Sometimes the tank is fine and the fault is on the electrical side. The breaker itself can wear out and trip under a normal load, especially in an older panel. A connection at the breaker, at the wire nuts in the heater's junction box, or at the element terminals can corrode or loosen, and a loose 240-volt connection heats up and trips. A breaker that is undersized for the heater's element wattage will also nuisance-trip. This is the part we handle: the circuit, breaker, and wiring feeding the unit.

- [ ] A worn breaker that trips under normal load, common in aging panels
- [ ] Corroded or loose lugs at the breaker or in the heater's junction box
- [ ] A breaker undersized for the element wattage
- [ ] Water dripping from a leaking tank onto the wiring or thermostat

Stop and call

Water and 240 volts do not mix, and this is not a reset-it-and-hope situation. Turn the breaker off and call a licensed electrician if any of these apply. If you see or smell smoke, or water is pooling around a live connection, get clear and call 911 first.

- [ ] The breaker trips again the moment you reset it
- [ ] A burning smell, buzzing, or scorch marks at the breaker or the heater's junction box
- [ ] Water leaking from the tank onto electrical connections
- [ ] The breaker or wiring is warm to the touch

Frequently asked questions

Why does my water heater trip the breaker immediately?

An instant trip on reset almost always means a heating element has shorted to ground. When an element's sheath cracks and water reaches the internal wire, it shorts to the grounded tank and the breaker cuts power right away to protect you. An electrician confirms it by reading the element's resistance to the tank with a meter, and the fix is replacing the failed element.

Can I just keep resetting the water heater breaker?

No. If it trips once, reset it a single time. If it trips again, the breaker is reading a real fault, and forcing it back on repeatedly only overheats the connection and raises the fire risk. Turn it off and have it diagnosed, since the problem is a specific part, usually an element, thermostat, or wiring fault, that needs to be found and replaced.

Is it the water heater or the electrical that's the problem?

It can be either. A shorted element or a stuck thermostat is inside the heater, while a worn breaker, corroded lugs, or a loose 240-volt connection is on the electrical side. We diagnose the circuit, breaker, and wiring feeding the unit, confirm whether the fault is electrical, and coordinate from there. Testing tells the two apart quickly.

How much does it cost to fix a tripping water heater circuit?

It depends on whether the fault is a breaker, a connection, or wiring, which is what we handle, versus a tank component. We give a free ballpark by phone once we know the symptoms, and confirm the price before any work. For a hands-on look, book a $295 Electrical Service Appointment: it includes up to the first hour of labor, and we confirm the price before any larger repair.

Sources

1. Troubleshooting Home Power Problems, Portland General Electric. https://portlandgeneral.com/outages-safety/why-is-my-power-out/home-faqs
2. Electrical Safety (safety tip sheet), National Fire Protection Association (NFPA). https://www.nfpa.org/-/media/project/storefront/catalog/files/safety-tip-sheets/electricalsafetytips.pdf

> **Need a licensed electrician in the Portland area?**
> Call Smiley Electric at (503) 484-7556 (Mon–Sat, 7am–5pm) or visit smileyelectric.net/contact. For sparks, smoke, a burning smell or a hot panel, turn off the power if it is safe and call right away.

Reviewed by Joshua Smiley, owner & master electrician, Smiley Electric. Last reviewed November 13, 2026. Online version: smileyelectric.net/help/water-heater-breaker-keeps-tripping/. General information, not a substitute for an on-site inspection.

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