Tech Tip #3

Control of Electric Water Heaters

Most residential electric water heaters used in homes today have two 4500-watt, 240-volt heating elements. These elements are interlocked by the water heater's internal thermostat so that only one element can come on at a time. To control the water heater, it is necessary to break only one leg of the water heater's power supply with the power relay in the Energy Sentry. This should be done by a licensed electrician and is not recommended for homeowners.

Figure 1

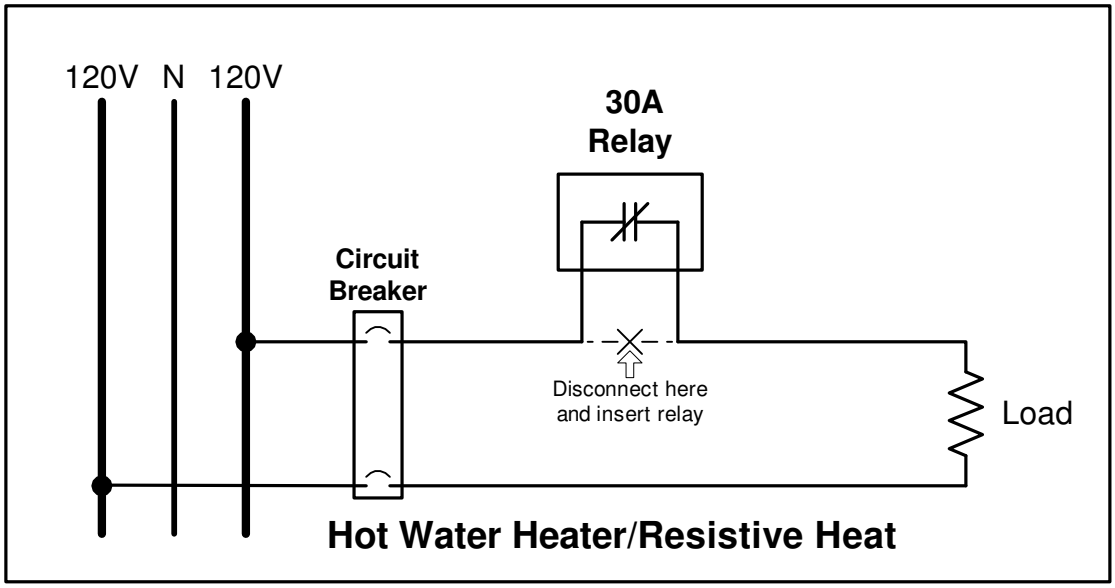
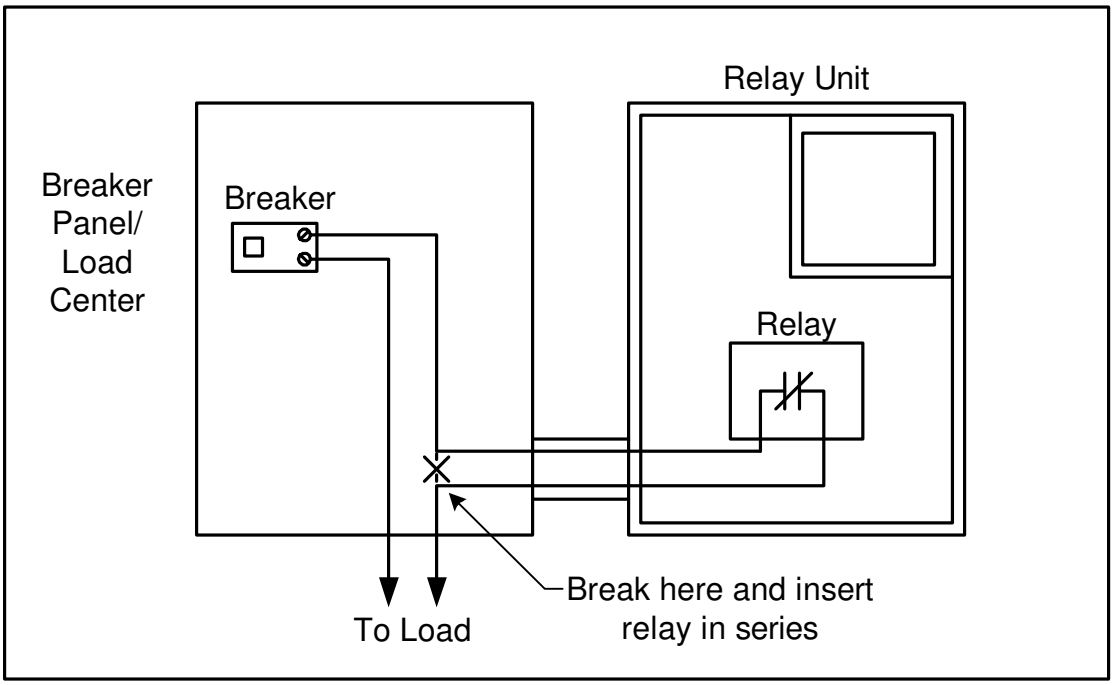


Figure 2



Tech Tip #3

Hook-up

1. Turn water heater breaker **OFF**.
2. Disconnect one wire from water heater breaker.
3. Extend the wire just disconnected to the Energy Sentry relay, using #10 AWG solid copper wire and appropriate wirenuts as shown in the figure above.
4. Add another #10 AWG wire from the now-empty breaker terminal to the other side of the Energy Sentry relay.
5. After completing all other wiring on the controller, turn water heater breaker **ON**.

Warnings

- Beware of mislabeling. Make certain the 30A breaker is the **water heater's** and not the dryer's, the other 30A breaker common in most breaker panels.
- If any loads connected to the Energy Sentry demand control system are wired with aluminum wiring, insure that connections between existing aluminum conductors and copper conductors of the Energy Sentry are properly done using a Copair tool, anti-oxident paste or anti-oxident impregnated wire-nuts.

Quick Test

1. Clip an Amprobe onto one of the water heater wires in the breaker panel. Turn the water heater breaker **ON**.
2. Turn **ON** water heater by turning UP the temperature of the water heater or by running enough hot water from faucets until thermostat in water heater calls for heat.
3. Check amperage going to the water heater. The amperage should be approximately 21 to 24 Amps when the water heater is on.
4. Lower demand to limit on the demand controller to minimum KW setting. Turn **ON** oven and range until all loads are shed. This may take a few minutes. The water heater's amperage should go to zero when the water heater is shed by the Energy Sentry.
5. Turn **OFF** oven and range.
6. Turn water heater's thermostat temperature back to normal.
7. Return the demand limit on the demand controller to the normal setting for the home.

ENERGY SENTRY®