

Res Tech  
Support

## Gas - Standard Control Water Heaters

### Pilot Will Not Hold

(Pilot will light but goes out immediately after the gas control knob is released)

#### Dear Homeowner,

This article, the website, videos, and other documents contain *supplementary information* and are not intended to replace the printed Instructions. For complete details, read and follow the printed Installation Instructions that came with your water heater or parts kit. The printed Instructions and product labels contain model-specific information, important warnings, and safety notices.

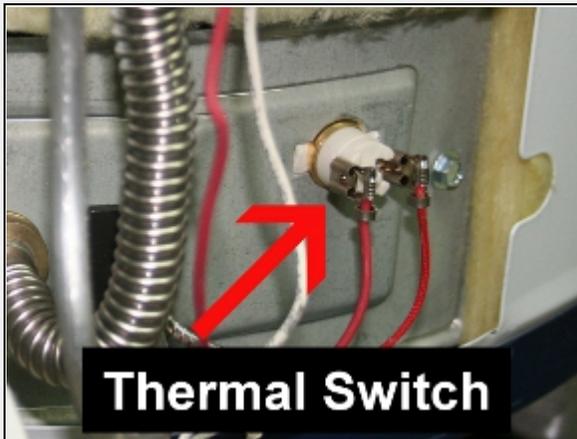
Based on the symptoms you described during your call, we believe the following information may be helpful. If you need additional help, go ahead and call the phone number on the side of your water heater.

Please read the safety information in the Owner's Manual and the labels on the water heater before attempting any of these procedures.

**If your water heater has a white thermal switch on the manifold door and the pilot does not remain lit after holding the gas control knob down for one minute, go ahead and reset the thermal switch. If your water heater does not have a white thermal switch on the manifold door, skip down to the "Check the Thermocouple Connection" section.**

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#### Reset Thermal Switch and Check Wiring



Thermal switch location on manifold door.



Gas control knob location on gas control valve.

#### **WARNING: BEFORE LIGHTING THE PILOT!**

**Fire and Explosion Risk. Do not attempt to light the water heater if flammable vapors or liquids are present. Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other gas appliance. Storage of or use of gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance can result in serious injury or death.**

Locate the white thermal switch on the right side of the manifold door and press the reset button in the middle of the switch. If you feel the thermal switch click when you press the reset button, the water heater's air supply may be restricted, there may be negative air pressure in the home, the vent system may be blocked, or there may be flammable vapors or liquids near the unit.

Thoroughly check the area near the water heater for any substances that may give off flammable vapors such as gasoline, paint, thinners, cleaning agents, solvents, or glue. If any flammable vapors or liquids are found near the water heater, remove them and do not light the unit. Have a service technician inspect the flame arrester for discoloration.

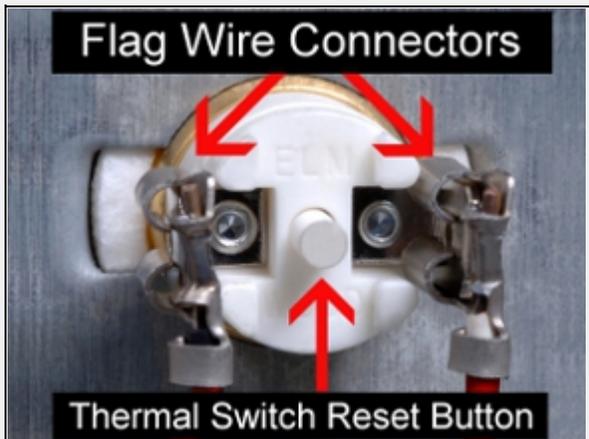
If flammable vapors are not found around the water heater, check the flame arrestor for dust or dirt. Cleaning the flame arrestor is easier if you [watch this video](#). If the flame arrestor is dirty, clean it using a vacuum cleaner with a brush attachment. Next, relight the pilot following the lighting instructions on the water heater.

If the pilot will not remain lit after resetting the thermal switch, the most likely causes are:

- loose connections
- a faulty thermal switch
- a bad thermocouple
- a bad gas valve

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## Check the Thermal Switch Connections



**Make sure the flag wire connectors are securely attached to the thermal switch**

Make sure the flag connectors (on both red wires) are firmly attached to the thermal switch. Next, check the thermocouple connection.

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## Check the Thermocouple Connection



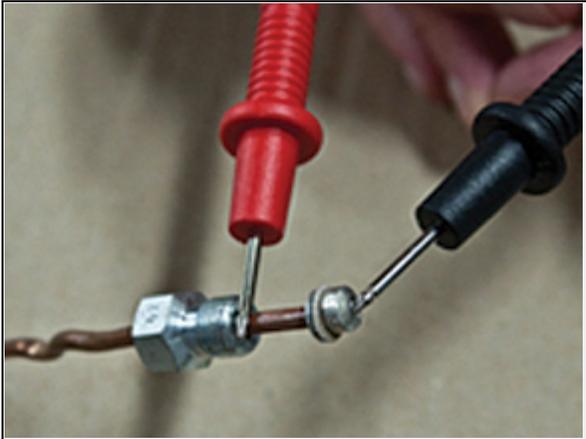
**Check/tighten the thermocouple connection.**

1. Locate the thermocouple (thick copper wire) connection at the bottom of the gas control valve housing (see photo). Make sure the thermocouple connection is securely attached to the gas control valve. Tighten gently with a 3/8" wrench.

2. Relight the pilot following the lighting instructions on the water heater. Once the pilot is lit, continue holding down the gas control knob while waiting one minute for the pilot to heat up the thermocouple.
3. Release the gas control knob. If the pilot goes out immediately, test the thermocouple.

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## Testing the Thermocouple



**To test the thermocouple, you'll need a multimeter capable of reading millivolts DC.**

You will need a multimeter capable of measuring millivolts DC to test the thermocouple. If you do not have a multimeter, have a service technician test the thermocouple. Follow these steps to test the thermocouple:

1. Use a 3/8" wrench to remove the thermocouple connection from the bottom of the gas control valve.
2. Set the multimeter to read millivolts DC.
3. Light the pilot. Once the pilot is lit, continue holding down the gas control knob until this test is complete (you may need assistance from another person to do this). Allow the pilot to heat the thermocouple for one minute.
4. Place the black multimeter probe on the tip of the thermocouple (silver part that connects to the gas control valve) and the red probe anywhere on the body of the copper thermocouple wire (see photo). Measure the output of the thermocouple in millivolts DC.
5. If you get a reading below 10 millivolts, replace the thermocouple. Have a service technician replace this part if you cannot perform the work safely.
6. If you get a reading of 10 millivolts or above, reconnect the thermocouple and relight the pilot. The pilot should hold if the thermocouple output is 10 millivolts or greater and the thermocouple is connected securely to the gas control valve. If the pilot still goes out immediately after the gas control knob is released, replace the gas control valve.

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If you need any additional help, go ahead and call the phone number on the side of your water heater.

**[Please take a moment to tell us how we did today.](#)**

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