



### ⚠ WARNING

Disconnect the electrical power before servicing the water heater. Service should only be performed by a qualified service technician. Failure to follow these instructions can result in personal injury and/or death.

CONDITION (code#)	CAUSE	REMEDY
	<b>1</b> An open earth ground circuit to the ignition.	<ol style="list-style-type: none"> <li>1) Check that the earth ground conductor is properly connected at the fuse box or breaker panel and the water heater.</li> <li>2) Check that the grounding conductors on the water heater are properly connected and secure.</li> </ol>
	<b>2</b> A wiring error or a high resistance to earth ground.	<ol style="list-style-type: none"> <li>1) Check for proper connection of the line neutral and line hot wires.</li> <li>2) Check that the water heater is securely connected to earth ground.</li> </ol>
	<b>3</b> The pressure switch remained closed longer than five (5) seconds after the call for heat began.	<ol style="list-style-type: none"> <li>1) The pressure switch wiring is incorrect.</li> <li>2) The pressure switch is defective and must be replaced.</li> </ol>
	<b>4</b> The pressure switch remained open longer than five (5) seconds after the power venter was energized. (see note at the bottom of the page)	<ol style="list-style-type: none"> <li>1) The pressure switch wiring is incorrect.</li> <li>2) The pressure switch tubing is not connected correctly.</li> <li>3) There are obstructions or restrictions in the water heater air intake or exhaust flue.</li> </ol>
	<b>5</b> The self diagnostic test has detected an error in the hot surface ignitor circuit.	<ol style="list-style-type: none"> <li>1) Check if the wiring is correct and secure.</li> <li>2) Disconnect the ignitor connector and measure the ignitor resistance with an accurate ohmmeter between pins 1 and 2. Resistance should be between 11.5 and 18.8 ohms.  If the reading is incorrect, replace the hot surface ignitor.</li> <li>3) If the above checks are good, replace the gas control valve.</li> </ol>
	<b>6</b> The maximum number of ignition retries or recycles has been reached and the system is in lock-out mode.	<ol style="list-style-type: none"> <li>1) Check if the gas supply is off or too low to operate.</li> <li>2) Check the flame sensor rod to see if it is located properly and free from contamination. Reposition the flame sensor rod or lightly clean it with an abrasive cloth.</li> <li>3) The hot surface ignitor may not be positioned correctly. Reposition, as necessary.</li> <li>4) Check that the hot surface ignitor and flame sensor rod are wired correctly and in good working condition.</li> <li>5) Low voltage to the water heater. Check and repair.</li> </ol>
	<b>7</b> The gas valve driver circuit.	<ol style="list-style-type: none"> <li>1) Turn off the power to the water heater for ten (10) seconds and then back on.</li> <li>2) If the above step did not clear the error, replace the gas control valve.</li> </ol>
	<b>8</b> The internal microcomputer.	<ol style="list-style-type: none"> <li>1) Turn off the power to the water heater for ten (10) seconds and then back on.</li> <li>2) If the above step did not clear the error, replace the gas control valve.</li> </ol>
	<b>9</b> The internal circuit.	<ol style="list-style-type: none"> <li>1) Turn off the power to the water heater for ten (10) seconds and then back on.</li> <li>2) If the above step did not clear the error, replace the gas control valve.</li> </ol>
	<b>10</b> Flame signal sensed out of proper sequence.	Replace the gas control valve.
	<b>11</b> The high temperature thermal cut-off is open.	Replace the gas control valve.
	<b>12</b> One of the temperature adjust buttons is stuck closed.	<ol style="list-style-type: none"> <li>1) Make sure that there are no objects leaning against the front of the control.</li> <li>2) Lightly press and release each of the buttons once.</li> <li>3) If the above actions do not clear the error, the control will continue to regulate the water temperature at the last setting, but you will not be able to change settings unless you replace the gas control valve.</li> </ol>
	<b>13</b> The water temperature sensor is either open or short-circuited.	<ol style="list-style-type: none"> <li>1) Check that all of the wiring is correct and that there are no open or shorted circuits.</li> <li>2) If no wiring problems are found, the gas control valve must be replaced.</li> </ol>
	<b>14</b> The self-diagnostic test found a problem with the flammable vapour sensor.	<ol style="list-style-type: none"> <li>1) Check that all wiring is correct and that there are no open or shorted circuits.</li> <li>2) If no wiring problems are found, the flammable vapour sensor must be replaced.</li> </ol>
	<b>15</b> The control detected the presence of flammable vapours near the appliance and entered lock-out mode.	<ol style="list-style-type: none"> <li>1) Identify the source of the flammable vapours and remove it from the area surrounding the water heater.</li> <li>2) Contact a qualified service technician or the gas supplier to have the water heater inspected immediately.</li> </ol>



CONDITION	CAUSE	REMEDY
<b>The burner will not ignite.</b>	No gas.	Check with gas utility company.
	Dirt in gas line.	Notify utility. Install drip leg in gas line.
	Air intake terminal is blocked.	Check outside for debris in the terminal or frozen air intake terminal and remove.
	Main burner line clogged.	Clean. Check for source of trouble and correct.
	Defective flame sensor.	Replace with new flame sensor.
	Defective gas control valve.	Replace with new gas control valve.
	Gas control valve set too low.	Turn temperature dial to desired temperature.
<b>The burner flame floats and lifts off ports.</b>	High gas pressure.	Check with gas utility company.
	Orifice too large.	Replace with correct orifice.
	Flue clogged.	Clean. Check for source of trouble and correct.
	Air intake terminal is blocked.	Check outside for debris in the terminal and remove.
	Cold drafts (downdraft).	Locate source and correct.
<b>The burner flame is yellow and lazy.</b>	Insufficient secondary air.	Check that the air intake terminal is not blocked.
	Flue clogged.	Clean. Check for source of trouble and correct.
	Air intake terminal is blocked.	Check outside for debris in the terminal and remove.
	Main burner line clogged.	Clean. Check for source of trouble and correct.
<b>The burner flame is too high.</b>	Insufficient secondary air.	Check that the air intake terminal is not blocked.
	Orifice too large.	Replace with correct orifice.
	Defective gas control valve.	Replace with new gas control valve.
<b>The flame burns at the orifice.</b>	Low gas pressure.	Check with gas utility company.
	Defective gas control valve.	Replace with new gas control valve.
<b>High operating costs.</b>	Gas control valve set too high.	Turn temperature dial to desired temperature.
	Sediment or lime in tank.	Drain. Check to see if water treatment is necessary.
	Water heater is undersized.	Install size of water heater that meets demand.
	Wrong piping connections.	Correct piping, dip tube must be in cold inlet.
	Leaking faucets.	Repair faucets.
	Gas leaks.	Check with gas utility company. Repair at once.
	Wasted hot water.	Advise consumer.
	Long runs or exposed piping.	Insulate piping.
Hot water piping on outside wall.	Insulate piping.	
<b>Insufficient hot water.</b>	Low gas pressure.	Check with gas utility company.
	Wrong piping connections.	Correct piping, dip tube must be in cold inlet.
	Sediment or lime in tank.	Drain. Check to see if water treatment is necessary.
	Water heater is undersized.	Install the size of water heater that meets the demand.
	Gas control valve set too low.	Turn temperature knob to desired temperature.
	Leaking faucets.	Repair faucets.
	Wasted hot water.	Advise consumer.
	Long runs or exposed piping.	Insulate piping.
Hot water piping on outside wall.	Insulate piping.	
<b>Slow hot water recovery.</b>	Insufficient secondary air.	Check that the air intake terminal is not blocked.
	Low gas pressure.	Check with gas utility company.
	Gas control valve set too low.	Turn temperature dial to desired temperature.
	Improper calibration.	Replace gas control valve.
	Flue clogged.	Clean. Check for source of trouble and correct.
	Water heater is undersized.	Install size of water heater that meets demand.
	Wrong piping connection.	Correct piping, dip tube must be in cold inlet.
	Wasted hot water.	Advise consumer.

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CONDITION	CAUSE	REMEDY
<b>Leaking water.</b>	Poorly sealed, hot or cold water connections, gas control valve threads, relief valve, or drain valve.	Tighten threaded connections.
	Leakage from plumbing system or other appliances.	Inspect plumbing system and other appliances.
	Condensation.	Refer to <b>Condensation</b> in the installation manual.
<b>Water drips from the relief valve.</b>	Heater stacking.	Lower gas control valve setting.
	Excessive water pressure.	Install a pressure-reducing valve.
	Thermal expansion in a closed water system.	Install an expansion tank.
	Improperly seated valve.	Check if relief valve works properly and replace, if necessary.
<b>The gas control valve fails to shut off.</b>	Defective gas control valve.	Replace with new gas control valve.
	Improper calibration.	Replace gas control valve.
<b>Condensation.</b>	Water heater filled for the first time.	Let water heater warm up. Problem should go away. If it persists, check all plumbing connections for leaks.
	Heavy draws of hot water with very cold refill water.	Let water heater warm up. Problem should go away. If it persists, check all plumbing connections for leaks.
	Water heater is undersized.	Install size of water heater that meets demand.
<b>Combustion odours.</b>	Insufficient secondary air.	Check that the air intake terminal is not blocked.
	Flue clogged.	Clean. Check for source of trouble and correct.
<b>Smoking and carbon formation (sooting).</b>	Insufficient secondary air.	Check that the air intake terminal is not blocked.
	Low gas pressure.	Check with gas utility company.
	Burner flame yellow and lazy.	Refer to <b>The burner flame is yellow and lazy</b> in the installation manual.
	Flue clogged.	Clean. Check for source of trouble and correct.
	Defective gas control valve.	Replace with new gas control valve.
<b>Smelly water.</b>	High sulfate or mineral content in water.	Change magnesium anode to an aluminum anode and bleach tank.