














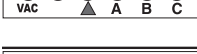




### ⚠ WARNING

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 or death.

| CONDITION (code#)  | CAUSE   | REMEDY   |
|--|---|--|
|  1    | 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>   |
|  2    | 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>  |
|  3    | 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>   |
|  4    | 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 properly connected.</li> <li>3) There are obstructions or restrictions in the water heater air intake or exhaust flue.</li> </ol>   |
|  5    | The self diagnosing 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.</li> </ol>  |
|  6    | 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> |
|  7   | 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.</li> </ol>   |
|  8  | 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.</li> </ol>   |
|  9  | The internal circuit.   | <ol style="list-style-type: none"> <li>1) Turn off the power to the water heater for ten (10) seconds, check polarity and then back on.</li> <li>2) If the above step did not clear the error, replace the gas control.</li> </ol>   |
|  10 | Flame signal sensed out of proper sequence.   | Replace the gas control.   |
|  11 | The high temperature thermal cut-off is open.   | Replace the gas control.   |
|  12 | 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.</li> </ol>   |
|  13 | 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 short circuits.</li> <li>2) If no wiring problems are found, the gas control must be replaced.</li> </ol>  |
|  14 | The self-diagnosing 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 short circuits.</li> <li>2) If no wiring problems are found, the flammable vapour sensor must be replaced.</li> </ol>   |
|  15 | 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 service technician to have the water heater inspected immediately.</li> </ol>   |
|  16 | Weak Flame Current.   | <ol style="list-style-type: none"> <li>1) Check that the flame sense rod to see if it is properly located and free from contamination. Reposition the flame sense rod or lightly clean with an abrasive cloth.</li> <li>2) Low voltage to the water heater. Check and repair.</li> </ol>   |



**Note:** Since the high limit switch on the blower is in series with the pressure switch, the problem could be that the high limit switch tripped.



| CONDITION  | CAUSE   | REMEDY   |
|--|---|--|
| <b>The burner will not ignite.</b>                               | No gas.   | Check with gas utility company.  |
|  | Dirt in gas line.   | Notify utility company. Install drip leg in gas line.  |
|  | Combustion air intake holes blocked.  | With a vacuum cleaner, remove dirt, dust, and lint.  |
|  | Main burner line clogged.   | Clean. Check for source of trouble and correct.  |
|  | Defective flame sensor.   | Replace with new flame sensor.   |
|  | Defective gas control.  | Replace with new gas control.  |
|  | Gas control set too low.  | Turn temperature dial to desired temperature.  |
| <b>The burner flame floats and lifts off ports.</b>              | Heater installed in a confined area.  | Provide fresh air ventilation.   |
|  | 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.  |
|  | Combustion air intake holes blocked.  | With a vacuum cleaner, remove dirt, dust, and lint.  |
| <b>Vacuum switch located in the blower assembly remain open.</b> | Heater installed in a confined area.  | Provide fresh air ventilation.   |
|  | Cold drafts (downdraft).  | Locate source and correct.   |
| <b>The burner flame is yellow and lazy.</b>                      | One of the potential causes is excessive dirt, dust, and other debris accumulation on the flame arrestor and the blower impeller. | Clean the flame arrestor in the combustion chamber using a stiff brush, compressed air and/or a vacuum cleaner. In no circumstances, the blower assembly should be removed for cleaning or replaced without contacting the manufacturer. |
|  | Insufficient secondary air.   | Provide fresh air ventilation.   |
|  | Flue clogged.   | Clean. Check for source of trouble and correct.  |
|  | Combustion air intake holes blocked.  | With a vacuum cleaner, remove dirt, dust, and lint.  |
|  | Main burner line clogged.   | Clean. Check for source of trouble and correct.  |
| <b>The burner flame is too high.</b>                             | Heater installed in a confined area.  | Provide fresh air ventilation.   |
|  | Insufficient secondary air.   | Provide fresh air ventilation.   |
|  | Orifice too large.  | Replace with correct orifice.  |
| <b>The flame burns at the orifice.</b>                           | Defective gas control.  | Replace with new gas control.  |
|  | Low gas pressure.   | Check with gas utility company.  |
| <b>High operating costs.</b>                                     | Defective gas control.  | Replace with new gas control.  |
|  | Gas control 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 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.  |  |



| CONDITION   | CAUSE  | REMEDY  |
|---|--|---|
| <b>Slow hot water recovery.</b>                                   | Insufficient secondary air.  | Provide fresh air ventilation.  |
|   | Low gas pressure.  | Check with gas utility company.   |
|   | Gas control set too low.   | Turn temperature dial to desired temperature.   |
|   | Improper calibration.  | Replace gas control.  |
|   | 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.   |
| <b>Leaking water.</b>   | Wasted hot water.  | Advise consumer.  |
|   | Poorly sealed, hot or cold water connections, gas control threads, relief valve, or drain valve. | Tighten threaded connections.   |
|   | Leakage from plumbing system or other appliances.  | Inspect plumbing system and other appliances.   |
| <b>Water drips from the relief valve.</b>                         | Condensation.  | Refer to <b>Condensation</b> in the installation manual.  |
|   | Heater stacking.   | Lower gas control setting.  |
|   | Excessive water pressure.  | Install a pressure-reducing valve.  |
|   | Thermal expansion in a closed water system.  | Install an expansion tank.  |
| <b>The gas control fails to shut off.</b>                         | Improperly seated valve.   | Check if relief valve works properly and replace, if necessary.   |
|   | Defective gas control.   | Replace with new gas control.   |
| <b>Condensation.</b>  | Improper calibration.  | Replace gas control.  |
|   | 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.   |
| <b>Combustion odours.</b>   | Water heater is undersized.  | Install size of water heater that meets demand.   |
|   | Insufficient secondary air.  | Provide fresh air ventilation.  |
|   | Heater installed in a confined area.   | Provide fresh air ventilation.  |
| <b>Smoking and carbon formation (sooting).</b>                    | Flue clogged.  | Clean. Check for source of trouble and correct.   |
|   | Insufficient secondary air.  | Provide fresh air ventilation.  |
|   | 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.   | Replace with new gas control.   |
| <b>Smelly water.</b>  | Heater installed in a confined area.   | Provide fresh air ventilation.  |
|   | High sulfate or mineral content in water.  | Change magnesium anode to an aluminum anode and bleach tank.  |
| <b>The access door temperature high limit switch is tripping.</b> | Not enough draft from the venting system.  | Check for any obstruction in the chimney. Ensure that the chimney is sized and installed according to instructions provided in the installation manual. |
|   | Not enough fresh air for the combustion.   | Supply make-up air. Refer to instructions provided in the installation manual.  |
|   | Ambiant air temperature is too high.   | Reduce ambient air temperature.   |
|   | Excessive dirt, dust, or other debris accumulation on the flame arrestor.                        | Clean the flame arrestor in the combustion chamber using a stiff brush, compressed air and/or a vacuum cleaner.   |