http://waterheatertimer.org/How-to-troubleshoot-gas-water-heater.html

TROUBLESHOOTING CHART

PROBLEM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
BURNER WILL NOT IGNITE	1. Pilot not lit 2. Thermostat set too low 3. Main burner line clogged 4. Non-functioning thermostat 5. Base-Ring Filter blocked with lint/dust 6. Heater installed in a confined area 7. FVIR Flame Arrestor blocked with lint/ dust.	1. Light pilot 2. Turn temp. dial to desired temperature 3. Clean, locate source and correct 4. Check status light codes and reference the "Status Light and Diagnostic Code Troubleshooting Chart" 5. Clean filter, See "External Cleaning & Inspection of the Base-Ring Filter" section. 6. Provide fresh air ventilation 7. Clean filter, See "Cleaning the Combustion Chamber and Flame-Arrestor" section.
SMELLY WATER	1. Sulfides in the water	1. Replace the anode with a special anode (See Smelly Odor section)
BURNER FLAME YELLOW-LAZY	1. Insufficient combustion air 2. Low gas pressure 3. Water heater flue or vent system blocked 4. Main burner line clogged 5. Base-Ring Filter blocked with lint/dust 6. Heater installed in a confined area 7. FVIR Flame Arrestor blocked with lint/ dust. 8. Obstruction in main burner orifice	1. Provide ventilation to water heater 2. Check with gas utility company 3. Clean, locate source and correct 4. Clean, locate source and correct 5. Clean filter, See "External Cleaning & Inspection of the Base-Ring Filter" section. 6. Proper fresh air ventilation 7. Clean filter, See "Cleaning the Combustion Chamber and Flame-Arrestor" section. 8. Clean or replace orifice
PILOT WILL NOT LIGHT OR REMAIN LIT	1. Non-functioning igniter 2. The thermal switch tripped 3. Wire lead connection at thermal switch loose 4. Thermopile connection loose 5. Air in gas line 6. Low gas pressure 7. No gas 8. Dirt in gas lines 9. Cold drafts 10. Thermostat temperature limit was exceeded, status light will blink 4 flashes 11. Pilot line or orifice clogged 12. Non-functioning thermopile 13. Air for combustion obstructed 14. FVIR Flame Arrestor blocked with lint/ dust 15. Flammable vapors incident, FVIR function actuated 16. Base-Ring Filter blocked with lint/dust	1. Replace igniter pilot assembly 2. See Pilot Light Troubleshooting Flowchart section 3. Remove and reconnect the wire leads at thermal switch, confirm connections are tight and not loose 4. Finger tighten; then 1/4 turn with wrench 5. Bleed the air from the gas line 6. Check with gas utility company 7. Check with gas utility company 8. Notify utility-install dirt trap in gas line 9. Locate source and correct 10. Replace thermostat 11. Clean, locate source and correct 12. Replace thermopile 13. See maintenance section for inspection and cleaning of flame arrester 14. Clean filter, See "Cleaning the Combustion Chamber and Flame-Arrestor" section. 15. Replace water heater, eliminate flammable vapors source. Contact Sears Service. 16. Clean filter, See "External Cleaning & Inspection of the Base-Ring Filter" section.
HIGH OPERATION COSTS	1. Thermostat set too high 2. Sediment or lime in tank 3. Water heater too small for job 4. Wrong piping connections 5. Leaking faucets 6. Gas leaks 7. Wasted hot water 8. Long runs of exposed piping 9. Hot water piping in exposed wall	1. Set temperature dial to lower setting 2. Drain/flush-provide water treatment if needed 3. Install adequate heater 4. Correct piping-dip tube must be in cold inlet 5. Repair faucets 6. Check with utility-repair at once 7. Advise customer 8. Insulate piping 9. Insulate piping
INSUFFICIENT HOT WATER	1. Thermostat set too low 2. Sediment or lime in tank 3. Water heater too small 4. Wrong piping connections 5. Leaking faucets 6. Wasted hot water 7. Long runs of exposed piping 8. Hot water piping in outside wall 9. Low gas pressure	1. Turn temperature dial to desired setting 2. Drain/flush-provide water treatment if needed 3. Install adequate heater 4. Correct piping-dip tube must be in cold inlet 5 Repair faucets 6. Advise customer 7. Insulate piping 8. Insulate piping 9. Check with gas utility company

TROUBLESHOOTING CHART (CONTINUED)

PROBLEM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
SLOW HOT WATER RECOVERY	1. Insufficient combustion air 2. Water heater flue or vent system blocked 3. Low gas pressure 4. Improper calibration 5. Base-Ring Filter blocked with lint/dust 6. FVIR Flame Arrestor blocked with lint/dust.	1. Provide ventilation to water heater. Check flue way, flue baffle, and burner 2. Clean flue, locate source and correct 3. Check with gas utility company 4. Replace thermostat 5. Clean filter, See "External Cleaning & Inspection of the Base-Ring Filter" section. 6. Clean filter, See "Cleaning the Combustion Chamber and Flame-Arrestor" section.
DRIP FROM RELIEF VALVE	1. Excessive water pressure 2. Heater stacking 3. Closed water system	1. Use a pressure reducing valve and relief valve 2. Lower the thermostat setting 3. See "Closed System/Thermal Expansion"
THERMOSTAT FAILS TO SHUT-OFF	1. Thermostat not functioning properly 2. Improper calibration	1. Replace thermostat 2. Replace thermostat
COMBUSTION ODORS	1. Insufficient combustion air 2. Water heater flue or vent system blocked 3. Heater installed in a confined area 4. Base-Ring Filter blocked with lint/dust 5. FVIR Flame Arrestor blocked with lint/dust.	1. Provide ventilation to water heater. Check flue way, flue baffle, and burner 2. Clean, locate source and correct 3. Provide fresh air ventilation 4. Clean filter, See "External Cleaning & Inspection of the Base-Ring Filter" section. 5. Clean filter, See "Cleaning the Combustion Chamber and Flame-Arrestor" section.
SMOKING AND CARBON FORMATION (SOOTING)	1. Insufficient combustion air 2. Low gas pressure 3. Water heater flue or vent system blocked 4. Thermostat not functioning properly 5. Heater installed in a confined area 6. Burner flame yellow-lazy 7. Base-Ring Filter blocked with lint/dust 8. FVIR Flame Arrestor blocked with lint/dust.	1. Provide ventilation to water heater. Check flue way, flue baffle, burner 2. Check with gas utility company 3. Clean, locate source and correct 4. Replace thermostat 5. Provide fresh air ventilation 6. See "Burner Flame Yellow-Lazy" 7. Clean filter, See "External Cleaning & Inspection of the Base-Ring Filter" section. 8. Clean filter, See "Cleaning the Combustion Chamber and Flame-Arrestor" section.
CONDENSATION	1. Temperature setting too low	1. Increase the temperature setting. Refer to the "Condensation" sub-section of this manual's Troubleshooting Guide.
BURNER FLAME FLOATS AND LIFTS OFF PORTS	1. Orifice too large 2. High gas pressure 3. Water heater flue or vent system blocked 4. Cold drafts	1. Replace with correct orifice 2. Check with gas utility company 3. Clean flue and burner-locate source and correct 4. Locate source and correct
BURNER FLAME TOO HIGH	1. Orifice too large	1. Replace with correct orifice
FLAME BURNS AT ORIFICE	1. Thermostat not functioning properly 2. Low gas pressure	1. Replace thermostat 2. Check with gas utility company
PILOT FLAME TOO SMALL	1. Pilot line or orifice clogged 2. Low gas pressure	1. Clean, locate source and correct 2. Check with gas utility company

STATUS LIGHT AND DIAGNOSTIC CODE TROUBLESHOOTING CHART

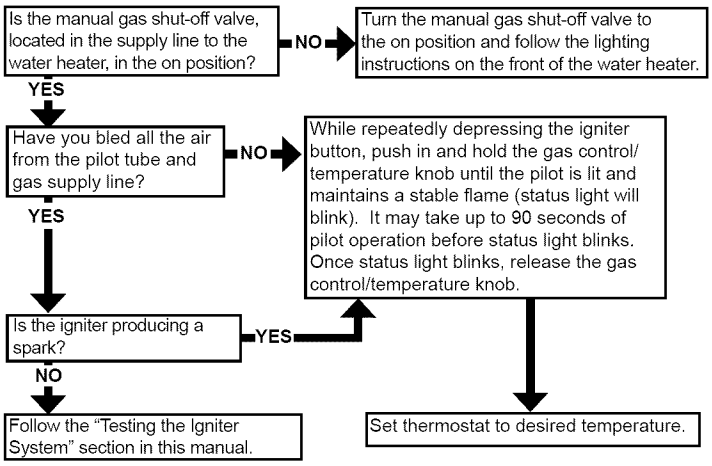
LED STATUS	PROBLEM	CORRECTIVE ACTION
0 FLASHES (LED NOT LIT)	Pilot light is not lit or Thermopile has not yet reached normal operating temperature.	Turn Gas Control Valve/Thermostat knob to OFF. Wait 10 minutes, then attempt to relight Pilot by following the lighting instructions on the water heater's label. Until the Thermopile reaches its normal operating temperature, the Status Light will not blink, even if the Pilot is lit. It may take up to 90 seconds of continuous Pilot operation before the Thermopile reaches normal operating temperature and the Status Light starts to blink. If the Status Light does not blink after three lighting attempts, check to make sure unit is getting gas. Remove the outer door. Press reset button. Replace outer door. Turn Gas Control Valve/Thermostat knob to OFF. Wait 10 minutes, then attempt to light Pilot by following the lighting instructions on the water heater's label. Look through the sight glass for the Pilot flame. If Pilot is not visible, the spark igniter or gas supply to the Pilot should be checked. If the Pilot is visible and the Status Light does not blink after 90 seconds of continuous Pilot operation, the Pilot flame may not be heating the Thermopile sufficiently (weak Pilot) or the Thermopile may be defective, or wiring connectors may be loose. Replace outer door and verify proper operation after servicing NOTE: If the water heater has been operating but has stopped and will not re-light, check the flame-arrestor for signs of high temperature (blue or black) discoloration indicating a flammable vapor incident. If you suspect a flammable vapor incident has occurred, do not use this appliance. Immediately call a qualified technician to inspect the appliance. Water heaters subjected to a flammable vapors ignition will require replacement of the entire water heater. NOTE: Check the gas control valve/ thermostat and thermal switch for any loose wiring connections, correct immediately.
RED LIGHT ON (SOLID)	Pilot light was recently extinguished and the Thermopile is cooling down.	Turn Gas Control Valve/Thermostat knob to OFF. Wait 10 minutes for the Thermopile to cool, then attempt to relight Pilot by following the lighting instructions on the water heater's label. NOTE: This gas control valve/thermostat has built-in circuitry that requires waiting 10 minutes between lighting attempts. Until the Thermopile reaches its normal operating temperature, the Status Light will not blink, even if the Pilot is lit. It may take up to 90 seconds of continuous Pilot operation before the Thermopile reaches normal operating temperature and the Status Light starts to blink.
1 FLASH (EVERY 3 SECONDS)	Normal operation.	No corrective action necessary.
2 FLASHES	Pilot is lit but the Thermopile is not producing the required output voltage.	Turn Gas Control Valve/Thermostat knob to OFF. The Thermopile is probably defective, but loose wiring connections or a weak Pilot flame can also cause this symptom.

STATUS LIGHT AND DIAGNOSTIC CODE TROUBLESHOOTING CHART

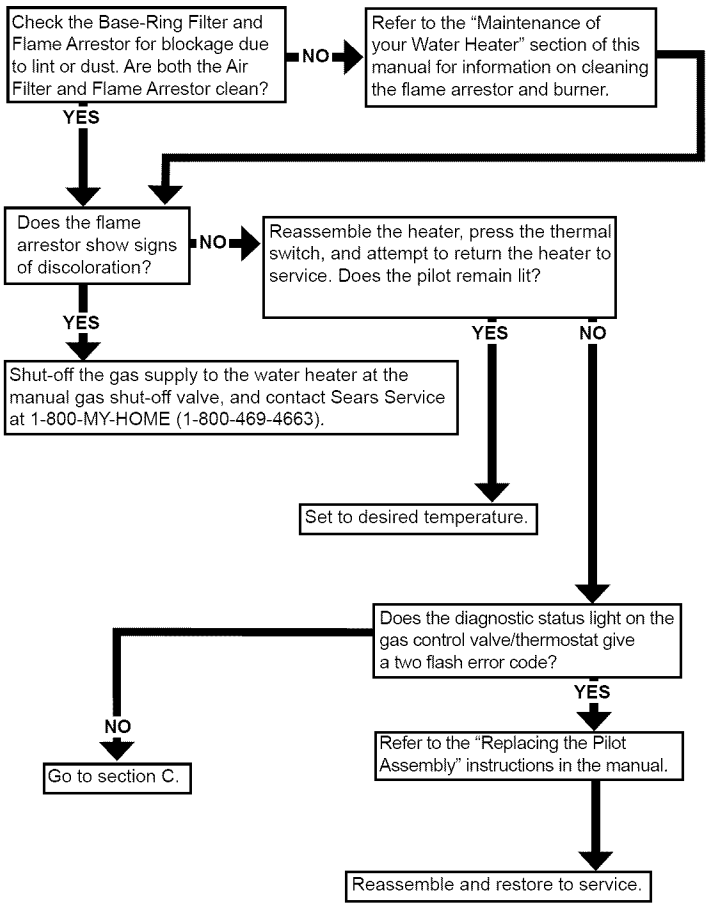
LED STATUS	PROBLEM	CORRECTIVE ACTION
4 FLASHES	The Gas Control Valve's temperature sensor has detected that the water temperature was too high. Once this condition occurs, the Main Burner and the Pilot Light will be shut off. Since the Pilot light will be off, should this condition occur, this Flash Code will only be displayed immediately after the Pilot has been relit. Turn Gas Control Valve/Thermostat knob to OFF.	Relight pliot and verify 4 flashes. If 4 flashes are observed turn Gas Control Valve/Thermostat knob to OFF. Turn Main Gas Supply OFF. Replace the Gas Control Valve/Thermostat.
5 FLASHES	The temperature sensor (thermistor) is defective.	Turn Gas Control Valve/Thermostat knob to OFF. Replace the Gas Control Valve/Thermostat.
7 FLASHES	Gas Control Valve failure.	Turn Gas Control Valve/Thermostat knob to OFF. Turn Main Gas Supply OFF. Gas Control Valve/ Thermostat.
8 FLASHES	This condition only appears if the gas control/temperature knob has been turned off and the thermopile continued to produce electric power. This condition can occur if the thermopile does not cool down as quickly as expected when the unit is shut off. This condition can also occur if the gas control/ temperature knob has been turned off and the pilot continues to operate because the pilot valve is stuck in the open position.	Make sure that the gas control valve/thermostat knob is set to OFF. Wait one minute. Remove the outer door. Look through the sight glass for a pilot flame. If a pilot flame is observed with the gas control valve/thermostat knob set to the OFF position, the pilot valve is stuck open. Turn the main gas supply OFF. Replace the gas control valve/ thermostat. For instructions, see "Removing and Replacing the Gas Control Valve/Thermostat." If the pilot flame is not observed when the gas control valve/thermostat knob is set to the OFF position, wait 10 minutes for the thermopile to cool, then attempt to relight the pilot by following the lighting instructions on the water heater's label. If this condition returns, replace the gas control valve/ thermostat. See "Removing and Replacing the Gas Control Valve/Thermostat" for instructions.

PILOT LIGHT TROUBLESHOOTING FLOWCHART

Section A: Pilot light will not light (new installation).

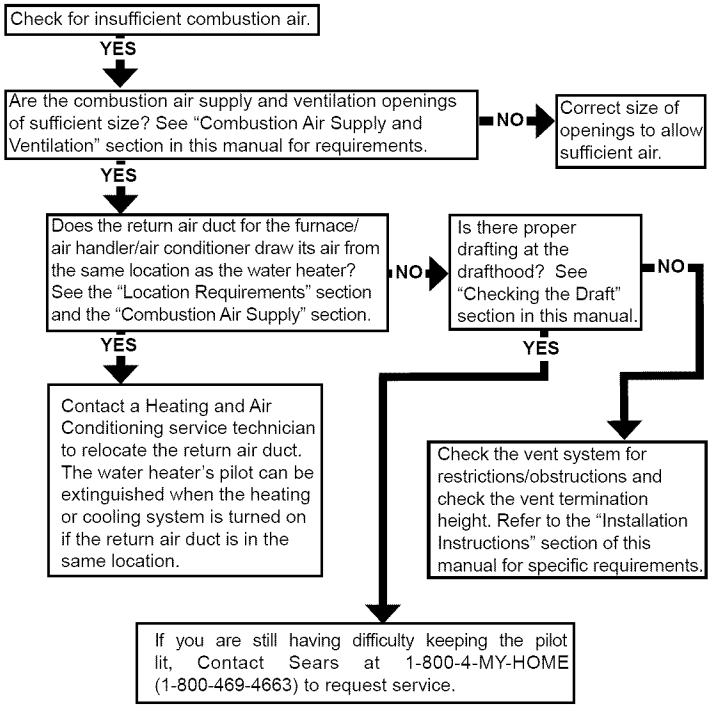


Section B: Pilot light repeatedly goes out.



Section C: Pilot light will not remain lit.

Complete this section after completing Section B.



NOTE: If you are still experiencing difficulties after following the steps in sections A, B, and C, please contact Sears Service at 1-800-MY-HOME (1-800-469-4663).

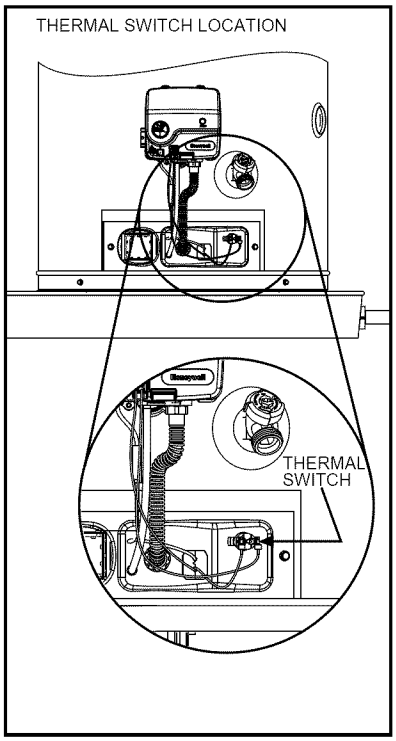


FIGURE 45.