Honeywell

Intermittent Pilot System

TROUBLESHOOTING S8600, S8610

START

TURN GAS SUPPLY OFF. TURN THERMOSTAT (CONTROLLER) TO CALL FOR HEAT

POWER TO MODULE (24V NOMINAL)

YES

SPARK ACROSS IGNITION SENSOR GAP

NO

Put ignition lead and check spark at module.

YES

SPARK ACROSS IGNITION SENSOR GAP

NO

Check line voltage power, low voltage transformer, limit controller, thermostat (controller) and wiring. Also, check air proving switch on combustion air blower system (if used) and that vent damper (if used) is open and switch is made.

On models with vent damper plug, make sure vent damper has not been installed, then removed. Replace vent damper if necessary.

On other models, replace module.

YES

TURN GAS SUPPLY ON. PILOT BURNER LIGHTS?

NO

Check that all manual gas valves are open, supply tubing and pressures are good, and pilot burner orifice is not blocked.

Check electrical connections between module and pilot operator on gas control.

Check for 24 VAC across PV-MNPV terminals on module. If voltage is okay, replace gas control; if not, replace module.

YES

SPARK STOPS WHEN PILOT IS LIT?

NO

Note: If S8603CH or S86103CH goes into lockout, reset system. For S8603CM and S86103CM, wait 6 min. before reset system.

Check continuity of igniter cable and ground wire.

Clean igniter rod.

Check electrical connections between igniter rod and module.

Check that igniter rod extends 1/4 in. into igniter.

Adjust igniter rod.

If problem persists, replace module.

YES

MAIN BURNER LIGHTS?

NO

Check for 24 VAC across MV-MNPV terminals. If no voltage, replace module.

Check electrical connections between module and gas control. If okay, replace gas control or gas control operator.

YES

SYSTEM RUNS UNTIL CALL FOR HEAT ENDS?

NO

Check continuity of igniter cable and ground wire.

NOTE: If ground is poor or erratic, shutdowns may occur occasionally even though operation is normal at the time of shutdown.

Check that pilot flame covers flame rod and is steady and blue.

If checks are okay, replace module.

YES

CALL FOR HEAT ENDS

SYSTEM SHUTS OFF?

NO

Check for proper thermostat (controller) operation.

Remove MV lead at module, replace temperature controller and wiring; if not, replace gas control.

YES

TROUBLESHOOTING ENDS

Repeat procedure until troublefree operation is obtained.

J.C.

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TROUBLESHOOTING

Check installation instructions and wiring diagram to be sure the ignition system is properly installed.
Go through the steps in the flow chart on the other side of this page.

IGNITION SYSTEM CHECKS

STEP 1: Check ignition cable.
Make sure:
- Ignition cable does not run in contact with any metal surfaces.
- Ignition cable is no more than 36 in. [0.9 m] long.
- Connections to the ignition module and to the igniter or igniter-sensor are clean and tight.
- Ignition cable provides good electrical continuity.

STEP 2: Check ignition system grounding. Nuisance shutdowns are often caused by a poor or erratic ground.
- A common ground, usually supplied by the pilot burner bracket, is required for the module and the pilot burner/igniter sensor.
  * Check for good metal-to-metal contact between the pilot burner bracket and the main line.
  * Check the ground lead from the GND (BURNER) terminal on the module to the pilot burner. Make sure connections are clean and tight. If the wire is damaged or deteriorated, replace it with No. 14-18 gauge, moisture-resistant, thermoplastic insulated wire with 105° C [221° F] minimum rating.
  - Check the ceramic flame rod insulator for cracks or evidence of exposure to extreme heat, which can permit leakage to ground. Replace pilot burner/igniter sensor and provide shield if necessary.
  - If flame rod or bracket are bent out of position, restore to correct position.

STEP 3: Check spark ignition circuit. You will need a short jumper wire made from ignition cable or other heavily insulated wire.
- Close the manual gas valve.
- Disconnect the ignition cable at the SPARK terminal on the module.

WARNING

When performing the following steps, do not touch stripped end of jumper or SPARK terminal. The ignition circuit generates over 10,000 volts and electrical shock can result.

- Energize the module and immediately touch one end of the jumper firmly to the GND terminal on the module. Move the free end of the jumper slowly toward the SPARK terminal until a spark is established.
- Pull the jumper slowly away from the terminal and note the length of the gap when sparking stops. Check table below.

<table>
<thead>
<tr>
<th>ARC LENGTH</th>
<th>ACTION</th>
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<tbody>
<tr>
<td>No arc or arc less than 1/8 in. [3 mm]</td>
<td>Check external fuse, if provided. Verify power at module input terminal. Replace module if fuse and power is okay.</td>
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<tr>
<td>Arc 1/8 in. [3 mm] or longer.</td>
<td>Voltage output is okay.</td>
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STEP 4: Check pilot and main burner lightoff.
- Set the thermostat to call for heat.
- Watch the pilot burner during the ignition sequence.
See if:
- Ignition spark continues after the pilot is lit.
  - The pilot lights and the spark stops, but main burner does not light.
  - S880B, H; S8810B, H; S8860D; S8870D only:
    - The pilot lights, the spark stops and main burner lights, but the system locks out.
- If so, ensure adequate flame current as follows.
  - Turn off furnace at circuit breaker or fuse box.
  - Clean the flame rod with emery cloth.
  - Make sure electrical connections are clean and tight. Replace damaged wire with moisture-resistant No. 18 wire rated for continuous duty up to 105° C [221° F].
  - Check for cracked ceramic insulator, which can cause short to ground, and replace igniter-sensor if necessary.
  - At the gas control, disconnect main valve wire from the TH or MV terminal.
  - Turn on power and set thermostat to call for heat.
  - The pilot should light but the main burner will remain off because the main valve actuator is disconnected.
  - Check the pilot flame. Make sure it is blue, steady and envelops 3/8 to 1/2 in. [10 to 13 mm] of the flame rod.
  - If necessary, adjust pilot flame by turning the pilot adjustment screw on the gas control clockwise to decrease or counterclockwise to increase pilot flame. Following adjustment, always replace pilot adjustment cover screw and tighten firmly to assure proper gas control operation.
  - Set thermostat below room temperature to end call for heat.
- Recheck ignition sequence as follows.
  - Reconnect main valve wire.
  - Set thermostat to call for heat.
  - Watch ignition sequence at burner.
  - If spark still doesn’t stop after pilot lights, replace ignition module.
  - If main burner doesn’t light or if main burner lights but system locks out, check module, ground wire and gas control as described in the troubleshooting chart.