The Beckett GeniSys Intermittent Pilot Gas Ignition Control is a 24 Vac gas ignition and safety control. The 7586 is designed for use in residential and light commercial gas heating applications which use an intermittent pilot for lighting the main burner. Applications may include boilers, furnaces, water heaters, space heating and commercial cooking equipment. The control uses flame rectification principles to prove the presence of the pilot flame. The control provides basic diagnostic information through 4 LEDs. Additional diagnostic information and control setup will be available through a separate diagnostic tool.
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Hazard Definitions:

![DANGER] Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

![WARNING] Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

![CAUTION] Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

![NOTICE] Used to address practices not related to physical injury.

![SAFETY INSTRUCTIONS] Safety instructions signs indicate specific safety-related instructions or procedures.
Features

- For use in Natural or LP gas applications
- 24 volts, 50/60 HZ
- Can provide either direct flame sense (single rod) through the igniter or indirect (two rod) remote sense using a separate flame rod
- Field selectable Single or Multiple trials for ignition or Continuous Retry on some models (may be factory locked)
- Field selectable ignition timings on some models (may be factory locked)
- Field selectable pre-purge timing on some models (may be factory locked)
- Field selectable relight or recycle operation on loss of flame (may be factory locked)
- The microprocessor is checked for proper operation prior to each ignition cycle
- Check for welded valve relays on each cycle
- 4 status LEDs supply basic diagnostics, additional diagnostic information and field configuration will be available through a separate diagnostic tool
- An optional separate alarm module provides alarm contacts (dry contacts)
- Manual reset button and non-volatile manual reset logic available on specific models (7586C)
- Communication Port to connect diagnostic tool and alarm module

Table 1 - Ignition Model Numbers

<table>
<thead>
<tr>
<th>Model Line</th>
<th>Model Description</th>
<th>Part Number</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-Rod</td>
<td>2-Rod</td>
<td>1/2-Rod Selector Wire</td>
</tr>
<tr>
<td>Intermittent Pilot</td>
<td>OEM 1-Rod</td>
<td>7586SYYYY</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>OEM 2-Rod</td>
<td>7586DYYYY</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Trade</td>
<td>7586TYYYY</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Manual Reset</td>
<td>7586CYYYY</td>
<td>X</td>
</tr>
</tbody>
</table>

The 7586 should only be used with pilot burners under 3,000 BTUs.

The standard model 7586 is designed for use on applications below 400,000 BTUs. For applications above 400,000 BTUs, contact Beckett’s Engineering Group.

*Non-volatile lockout cannot be cleared by removing power from the control. The control must be reset by pressing the reset button on the lower right side of the control.
Specifications

**Electrical Ratings**
- **Voltage**: 24 volts (18-30 Vac) 50/60Hz
- **Control Current Draw (Run)**: 0.2 Amps (control only)
- **Pilot Valve Rating**: 2.0 Amp
- **Main Valve Rating**: 5.0 Amps
- **Note**: On models with damper plug but no damper installed, total current draw for all gas valves must be less than 1.75 amps
- **Minimum Flame Current Required**: 1.0 µA
- **Flame Failure Response Time**: 0.8 sec. (Max.)
- Control is not polarity sensitive
- **Heat Anticipator Setting**: 0.2 amp + gas valve current draw

**Environmental Ratings**
- **Operating Temperature Range**: -40°F to +175°F (-40°C to +79.4°C).
- **Relative Humidity Operating Range**: 5% - 95% (non-condensing).

Not intended for outdoor use unless mounted in appropriate enclosure.

**Approvals**
UL listed per ANSI Z21.20, UL372 and CSA C22.2#199

**Lockout Sequence Options**
- Sequence is usually factory locked
- Lockout after single trial for ignition (volatile lockout)
- Lockout with retrial every 1 hour (volatile lockout)
- Lockout after 3 trials for ignition (volatile lockout)
- Continuous Retry: shutdown after trial for ignition, 5 minute waiting time, then retrial for ignition, no lockout.

Optional manual reset logic: shutdown after failure to light during trial for ignition timing or after flame failure, (no relight attempt), after 5 minute minimum waiting time, 1 retry attempt allowed, then non-volatile lockout. Lockout must be manually reset.

**Timings**
- All timings can be factory locked. Timings below may be field selectable on some models.
- **Ignition Trial**: 10-90 seconds (10 seconds max for manual reset version)
- **Pre-purge timing**: 1-240 seconds
- **Inter-purge timing**: 30-300 seconds

**Electrical Connections**
- **1/4” Quick Connects (7 total)**:
  - MV - Main Gas Valve
  - PV - Pilot Gas Valve
  - MV/PV - Gas Valve Common
  - TH-W - Thermostat or Controller
  - Burner GND (GND)- Burner Ground
  - 24 V GND - Common to transformer
  - 24 V - power (only damper models)
- **6-Pin Damper Connection (optional)**
- **1/4” Quick Connect Spark Cable**
- **3/16” Remote Sense quick connect terminal and Direct Sense Jumper (present on some models)**
- **Micro-USB Communications Port**

**Additional Features**
- **4 Diagnostic LEDs**: Status (green), Flame (yellow), MV (green), PV (green)
- **Reset Button** (optional)
- **Alarm Contacts** (optional module)

**NOTICE**
DO NOT connect any cell phone, tablet or computer to the communications port. Any device connected to the port will be damaged.
Installation

**WARNING**

**Professional Service Required**

Incorrect installation or misuse of this control could result in severe personal injury, death, or substantial property damage from explosion or fire.

Read and understand this manual. This control must be installed, configured and put into operation only by a qualified individual or service agency that is:

- Licensed or certified to install and provide technical service to gas heating systems.
- Experienced with all applicable codes, standards and ordinances.
- Responsible for the correct installation and commissioning of this equipment.

The installation must strictly comply with all applicable codes and authorities having jurisdiction and the latest revision of the National Fire Protection Association Standard or CSA Standard for the installation of gas controls in the appropriate gas appliance.

Regulation by these authorities take precedence over the general instructions provided in this installation manual.

---

**WARNING**

**Explosion, Fire, Scald, and Burn Hazard**

Can cause severe injury, death, or property damage.

- The control can malfunction if it gets wet, leading to an accumulation of explosive gas vapors.
- Never install where water can flood, drip or condense on the control.
- Never use a control that has been wet - replace it.

All heating appliances must have HIGH LIMIT protection to interrupt electrical power and shutdown the burner if operating or safety controls fail and cause a runaway condition.

- Follow the appliance manufacturer’s wiring diagrams and note all required safety controls.
- Typical safety controls include high temperature or pressure limits, low water cutoffs, pressure relief valves and blocked flue sensing switches.
- Verify all limit and safety controls are installed and functioning correctly, as specified by the manufacturer, applicable safety standards, codes and all authorities having jurisdiction.
- Ensure that gas or gas vapors have not accumulated in the appliance before starting or resetting the burner.

---

**WARNING**

**Fire or Explosion Hazard**

Can cause severe injury, death, or property damage.

If You Smell Gas or Believe a Leak May Exist

- Turn off the manual gas valve to the appliance.
- Leave the building.
- Do not try to light the appliance.
- Do not touch any electrical switch.
- Do not use a telephone within the building.
- Leave the building before calling the appropriate gas organization.

---

**WARNING**

**Electrical Shock Hazard**

Electrical shock can cause severe personal injury or death.

- Disconnect ALL electrical power to the appliance/burner circuit before installing or servicing this control.
- Provide ground wiring to the appliance and burner.
- Perform wiring in compliance with the National Electrical Code ANSI/NFPA 70 (Canada CSA C22.1).
Mounting

The control should be mounted in accordance with the appliance manufacturer’s instructions. If this is a replacement application, mount the control in the same location as the existing control. Mount the control to allow for a short (3 feet or less) ignition cable connection to the pilot burner. The control may be mounted using #8 sheet metal screws or nylon fasteners (if included). Avoid mounting locations where water could drip on the control. Mounting location must remain within the -40°F (-40°C) to +175°F (79.4°C) operating temperature range.

Module should be mounted horizontally with the terminals down to help protect against dripping water or condensation. Alternate mounting positions include mounting with the terminals on either side. Avoid mounting the module with the terminals on top.

Mounting location should protect against moisture, corrosive chemicals, excessive dust or water. If any of the above elements are present, control should be mounted in a NEMA 4 rated enclosure.

Transformer Sizing

A transformer with a 24 volt secondary is required to power the control and gas valve. To calculate the minimum VA transformer needed:

\[
\text{Voltage} \times \text{Amperage} = \text{VA rating needed}
\]

Voltage = 24 Vac
Amps = (0.2 amps+gas valve current draw)

Example for a 0.5A current draw gas valve (0.2A (7586) + 0.5A (gas valve) = 0.7 A

0.7A X 24V = 16.8 VA or 20 VA transformer

Wiring

\boxed{\text{WARNING }}

Electrical Shock Hazard

Electrical shock can cause severe personal injury or death.

Make sure ignition cable is securely installed on both the control and the igniter. Failure to secure the ignition cable can lead to electrical shock.

\boxed{\text{CAUTION }}

Electrical Shock Hazard

To Prevent Shock or Damage to the Appliance or the Control, Remove Power Before Making Any Wiring Connections.

Do not short out gas valve or control terminals during testing. Shorting could cause damage to the thermostat or control and could cause personal injury or property damage.

\boxed{\text{NOTICE }}

Incorrect Wiring Will Result in Improper Control Operation

- Label all wires prior to disconnection when servicing controls
- GeniSys wiring order and colors may not match the wire order and colors of the appliance or other manufacturers’ controls.
- The GeniSys Control should be wired according to the appliance manufacturer’s instructions.

Wiring must comply with all national and local codes. Wiring must follow appliance manufacturer’s instructions. Follow the appropriate hook up drawing for the application in which the control is being installed. Use adapter provided if existing control has a rajah connector for the spark cable.

\boxed{\text{NOTICE }}

No User Serviceable Parts

- Do not open control.
- Do not attempt to replace any components.
## Figure 1 - Getting to know the control

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Igniter Connection</td>
</tr>
<tr>
<td>2</td>
<td>Flame Sense Terminal (7586D,T,C only)</td>
</tr>
<tr>
<td>3</td>
<td>Flame Sense Jumper (7586T,C only)</td>
</tr>
<tr>
<td>4</td>
<td>Reset Button (7586C only)</td>
</tr>
<tr>
<td>5</td>
<td>Damper Plug and 24V power for powering damper (7586T,C only)</td>
</tr>
<tr>
<td>6</td>
<td>Gas Valve Terminals</td>
</tr>
<tr>
<td>7</td>
<td>Burner Ground</td>
</tr>
<tr>
<td>8</td>
<td>24V Power &amp; 24V Ground</td>
</tr>
<tr>
<td>9</td>
<td>LED Signal Lights</td>
</tr>
<tr>
<td>10</td>
<td>Com Port</td>
</tr>
</tbody>
</table>
Figure 2 - Single Rod or Direct Sense Wiring with Damper

Figure 3 - Two Rod or Remote Sense Wiring with Pilot Control

NOTE: Damper plug standard on Trade models, optional on OEM models.
**NOTICE** For single rod sensing applications (sensing through the spark cable), the sensing jumper wire (if present) must be connected to the sense terminal. For two rod sensing applications using a separate flame sensing rod, the wire from the flame rod should be connected to the sense terminal and the jumper wire should be cut and discarded. OEM single rod controls have no sense terminal. OEM two rod controls have a sense terminal but no jumper wire.

**NOTICE** The ignition cable length from the module to the pilot should be 3 feet or less, if possible. Avoid placing the ignition cable in direct contact with metal surfaces as reduced spark voltage could result. Use plastic or ceramic standoffs if necessary.

**NOTICE** The control, igniter and flame sensor must have a common ground with the main burner for proper operation. Failure to provide proper ground for the control, igniter and sensor may result in a failure to sense the presence of flame. The failure to sense flame will result in lockout of the control or continued trials for ignition.

**Damper Wiring**

**NOTICE** Trade replacement controls come standard with a 6-pin damper connector. The connector has a jumper installed to allow use without a damper. The portion of the plug with the jumper must be removed to use the connector with a damper.

**NOTICE** When a damper is connected using the damper connector and power is supplied to the control, a fuse on the control will blow. Once this fuse is blown, the control can only be used with a damper connected.

### Frozen Plumbing and Water Damage Hazard

If the residence is unattended in severely cold weather, burner primary control safety lockout, heating system component failures, power outages or other electrical system failures could result in frozen plumbing and water damage in a matter of hours.

For protection, take preventive actions such as having a security system installed that operates during power outages, senses low temperature and initiates an effective action. Consult with your heating contractor or a home security agency.

### Safety Check

Before starting appliance, make sure that all wiring is correct and secure. Repair or replace any loose connections or damaged wire. Use only wire rated for the application.

- Use UL approved wire of the gauge and temperature rating specified by the appliance manufacturer for any replacement wiring.
- Use UL approved 10,000 volt, solid conductor ignition cable. Cable must meet the temperature rating specified for the application. Use insulated boots on both ends of ignition cable.

**SAFETY INSTRUCTIONS** Perform a visual inspection of all system components including the gas supply system. Check for any leaks in the gas supply system using a soap and water solution or electronic detection.

### Check Safety Timings

- Turn off gas supply to appliance.
- Restore power to the appliance.
- Turn the thermostat or controller up to call for heat. Status LED should be powered.
Following pre-purge (if applicable), spark should be present at the pilot burner. Pilot LED should light. Pilot valve should open.

Spark should stay on for the entire ignition timing.

Spark should switch off at the end of the ignition timing. Pilot valve and PV LED should turn off.

If the control is programmed for single trial for ignition, the Status light will flash rapidly to indicate lockout.

For controls programmed for multiple trials for ignition, allow the control to continue retrials until lockout occurs. Status LED will flash slowly during waiting period.

If the control is programmed for continuous retry, the control will shut down for 5 minutes; the Status light will flash slowly to indicate waiting. The control will try to light again after 5 minutes.

Check for Normal Operation

Restore power to the appliance.

If the control is in lockout, reset the control. (If manual reset, push reset button.)

Turn manual gas cock to on position.

Turn gas valve to on position using either the manual gas knob or the electrical switch on the valve.

Turn the thermostat or controller up to call for heat. Status LED should be powered once damper (if present) opens.

Following pre-purge (if applicable), spark should be present at the pilot burner. Pilot valve LED should light and the pilot valve should open.

When pilot is lit by spark, the Flame LED will light, ignition will shut off, the main burner gas valve will open and the Main Valve LED will light.

Flame LED should be on continuously.

The main burner should light quickly from pilot without rollout or flashback.

Check main burner for proper combustion following appliance manufacturer’s instructions. The flame should burn on the surface of the burner without lifting or floating.

Remove call for heat by turning the thermostat or controller down. All LEDs should turn off and the valve should close.

Both pilot and main burner should turn off quickly.

Simplified Sequence of Operation

On a call for heat:

If a damper is present, control will be powered through the damper.

Damper must reach full open position before control will be powered. Status LED will turn on.

If damper fails to open, the control remains in an unpowered state.

Control performs safe-start check.

If safe-start fails, control locks out.

If safe-start passes, control checks for presence of flame.

If flame is present, control will enter hold state until flame is no longer present. Flame LED and Status LED will flash until flame is no longer present.

Begin pre-purge, 1-240 seconds.

After Pre-purge timing, control energizes spark and pilot valve. Pilot LED should energize.

Spark continues until end of ignition timing or until flame is proved (spark may continue for up to 3.5 seconds once pilot is lit).

Once flame is proved, spark is turned off and main gas valve, MV LED and Flame LED are energized.
If flame is not proved, the control will lockout or enter the inter-trial waiting period. Status LED will flash rapidly for lockout or slowly for inter-trial waiting. If multiple trial logic is used, the control will complete the trials for ignition. If continuous retry logic is used, the control will wait 5 minutes and restart the ignition sequence. The Status LED will flash slowly during waiting period. When flame is proved and the main valve is opened, the control will continue in run mode until the end of the call for heat. When the call for heat is ended, the pilot valve, main valve and all LEDs are de-energized.

**Settings**
The trade replacement version of the 7586 can be configured using the diagnostic tool to replace many intermittent pilot controls. *Settings are locked after 4 hours of burner operation.*

*WARNING* Fire or Explosion Hazard

*Can cause severe injury, death, or property damage.*

Replacement control must be configured to match all timings, settings and the pre-purge of the control being replaced.

- **DO NOT SET THE TRIAL FOR IGNITION TIMING LONGER THAN THE TIMING ON THE ORIGINAL CONTROL.** Severe injury, death, or substantial property damage could result from a longer trial for ignition timing.
- **MATCH THE LOCKOUT LOGIC SEQUENCE TO THE ORIGINAL CONTROL.** If the original control is a single trial for ignition or allows three trials for ignition before lockout, the replacement control must match the number of ignition trials.

**Lockout without Retry**
If the Status LED is flashing rapidly (3 times per second), the control is in lockout. All control outputs are turned off and the control will not respond to a call for heat. The control enters lockout when:

- The control fails to prove flame during the trial for ignition period
- The control fails the valve relay check

**Lockout with Retry (optional)**
Interruptions in the gas supply can prevent the burner from lighting during the trial for ignition and cause the control to lockout. If the house or building is unoccupied for long periods during cold weather, a lockout can lead to low temperatures or freezing in the structure.

The 7586S, D and T models can be configured to automatically allow an ignition retry once every 1-8 hours (selectable using the diagnostic tool or by factory configuration). This configuration may help by allowing periodic ignition retries until the gas supply is restored. The control will only allow retry if the lockout is caused by failure to prove flame during the trial for ignition. If the lockout is caused due to a failed valve relay check, no retry is allowed. The ignition retries will only happen if there is power to the control and there is a call for heat from the thermostat or controller. This retrial feature may not be available (factory locked) in some controls including the 7586C version.

The green Status LED will flash slowly (once per second) during waiting period.

**Reset from Lockout**
Reset control from lockout by turning down the thermostat for 10 seconds or by removing power from system for 10 seconds. Manual reset control must be reset by pushing reset button when control is powered.
**Flame Signal Strength Indication**

The 7586 uses flame rectification to prove the presence of the pilot flame. For reliable operation, a strong flame current is needed. The yellow Flame LED provides a reliable indication of the flame current strength.

When the pilot is lit;
- A continuously on Flame LED indicates a strong flame current.
- A slowly flashing Flame LED indicates a marginal flame current strength. Consider adjusting the flame on the pilot to improve the flame signal.

If the Flame LED is off, no flame is being detected. Refer to the Troubleshooting Section to resolve the issue.

**Control Cycling Rate**

The 7586 is designed for use in typical heating applications which cycle a few times per hour during the heating season. More rapid cycling of the control will shorten the useful life of the control. Controls in rapid cycling applications should be checked monthly for proper operation. All controls should be checked at least annually for proper operation.

**Table 2 - Operating Sequence**

<table>
<thead>
<tr>
<th>LEDs</th>
<th>Call for Heat</th>
<th>Prepurge</th>
<th>Pilot Ignition</th>
<th>Run</th>
<th>End Call for Heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>On</td>
<td>Prepurge</td>
<td>Status, PV LEDs On</td>
<td>Status, PV, MV, Flame LEDs On</td>
<td>LEDs Off</td>
</tr>
<tr>
<td>Flame</td>
<td>On</td>
<td>On</td>
<td>On</td>
<td>On</td>
<td></td>
</tr>
<tr>
<td>MV</td>
<td>On</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timers &amp; Timings</td>
<td>Pre-purge Timer 1 - 240 Seconds</td>
<td>Ignition Trial Timer 10-90 Seconds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flame Check</td>
<td>On</td>
<td>On</td>
<td>On</td>
<td>On</td>
<td></td>
</tr>
<tr>
<td>Igniter</td>
<td>On</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Pilot Gas Valve</td>
<td>On</td>
<td>On</td>
<td>Off</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>Main Gas Valve</td>
<td>Off</td>
<td>On</td>
<td>Off</td>
<td>Off</td>
<td></td>
</tr>
</tbody>
</table>

**Spark Gap**

Follow appliance manufacturer’s or burner manufacturer’s instructions for setting the proper ignition electrode spark gap.

**Status & Diagnostics**

The 7586 module has 4 LED lights that help provide status and diagnostic information. The four LEDs are Status, Flame, MV, and PV. The LEDs use 4 modes; On, Off, Slow Flash, Fast Flash.

The tables on the following pages describe the information available through the LEDs.

Use the key to identify the LED behavior.
### Table 3 - Normal LED Sequence

<table>
<thead>
<tr>
<th>LED</th>
<th>LED STATE</th>
<th>CONTROL STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATUS</td>
<td>All LEDs off</td>
<td>No call for heat or no power to appliance</td>
</tr>
<tr>
<td>STATUS</td>
<td>Flashing slowly (once per second)</td>
<td>Pre-purge or waiting period between trials for ignition</td>
</tr>
<tr>
<td>FLAME</td>
<td>Status and PV LEDs on continuously</td>
<td>Trial for Ignition</td>
</tr>
<tr>
<td>FLAME</td>
<td>Status, PV and Flame LEDs on, will happen only briefly before run mode starts</td>
<td>Pilot flame has been proved</td>
</tr>
<tr>
<td>FLAME</td>
<td>Status, PV, Flame and MV LEDs all on continuously</td>
<td>Control is in run mode and will continue in run mode until call for heat ends</td>
</tr>
</tbody>
</table>

**Note:** On a call for heat, module will immediately transition to pre-purge or trial for ignition. If pre-purge is set for 1 second, control will move directly to trial for ignition without flashing the Status LED for pre-purge.

### Table 4 - Additional LED Diagnostic Help

<table>
<thead>
<tr>
<th>LED</th>
<th>LED STATE</th>
<th>CONTROL STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATUS</td>
<td>Status LED is flashing quickly, 3 times per second</td>
<td>Control is in lockout, follow reset steps under troubleshooting box “If the Status LED is flashing quickly”</td>
</tr>
<tr>
<td>FLAME</td>
<td>Status, PV, Flame and MV LEDs all flashing</td>
<td>Control failure - internal error, try resetting the control once, if problem reoccurs, replace the control.</td>
</tr>
<tr>
<td>FLAME</td>
<td>Status and Flame LEDs flashing</td>
<td>Flame has been sensed when flame should not be present, follow troubleshooting under “If green Status and yellow Flame LEDs are both flashing”</td>
</tr>
<tr>
<td>FLAME</td>
<td>Status, PV and MV LEDs on continuously, Flame LED flashing</td>
<td>Flame signal is weak, follow troubleshooting steps under “Is the yellow Flame LED on?”</td>
</tr>
</tbody>
</table>
Troubleshooting

Check LEDs First - Find the box on the left that matches the LED display you are seeing. When all four LEDs are on continuously and the main burner is lit, the system is operating normally.

Table 5 - Troubleshooting

<table>
<thead>
<tr>
<th>STATUS</th>
<th>PV</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAME</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If the green Status LED is off:**
- No power to the control.
- Check that the thermostat or controller is calling for heat.
- Check for power to the appliance.
- Check that limit is closed, check that roll out switch and blocked vent switch are closed (if present).
- Check for power to the system transformer.
- If damper is present, check that damper is fully open and that end switch is made.
- If air proving switch is present, check that air is moving and switch is closed.
- Check all wiring and connections including damper plug jumper (if present).
- If 24 volts measured at control between TH-W and 24 V GND and LED is off, cycle power off and on once, if problem repeats, replace control.

<table>
<thead>
<tr>
<th>STATUS</th>
<th>PV</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAME</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If the green Status LED is flashing quickly (3 times per sec.):**
- Control is in lockout.
- For 7586S,D and T models, turn the thermostat or controller to off position, wait 10 seconds then turn thermostat or controller to call for heat.
- For the 7586C with a built-in reset button, push the reset button while module is powered.
- Control should start ignition sequence.
- If pilot and burner do not light properly, follow the troubleshooting sequence.

<table>
<thead>
<tr>
<th>STATUS</th>
<th>PV</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAME</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If the green Status LED is flashing slowly (1 time per sec.):**
- Control is in pre-purge (before ignition sequence starts) OR control is in a waiting period between trials for ignition.
- The pre-purge period is 1-240 seconds, depending on setting.
- The control waiting period is 30 seconds to 5 minutes, depending on setting.
- Either wait for pre-purge/waiting period to finish, OR
- Turn thermostat or controller off for 5 minutes (LED should turn off) then turn thermostat or controller back on to restart ignition sequence, allow the control to go through pre-purge, if any, and complete the trial for ignition sequence.
- If pilot and burner do not light properly, follow the troubleshooting sequence.

<table>
<thead>
<tr>
<th>STATUS</th>
<th>PV</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAME</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If the green Status LED and green PV LEDs are on continuously**
- Call for heat is active.
- Control is powered.
- Control should be sparking at the pilot.
- If no sparking at pilot, follow the troubleshooting sequence

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>FLAME</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If the green Status, PV and MV LEDs are on continuously and the Flame LED is flashing**
- The flame signal is weak.
- Try to improve flame signal strength by following steps in the Troubleshooting Sequence under “Is the yellow Flame LED on?”

*Continued on next page ➤*
Table 5 (Continued)

<table>
<thead>
<tr>
<th>STATUS</th>
<th>FLAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV</td>
<td>MV</td>
</tr>
</tbody>
</table>

If the green Status LED and yellow Flame LEDs are both flashing
- The control is sensing flame when no flame should be present.
- The control enters a hold state, this is not a lockout.
- Control will remain in hold state until flame is no longer present.
- Check for flame at the pilot.
- Check gas valve for leakage through the valve, replace valve if leaking.
- Measure gas pressure to make sure pressure does not exceed valve rating.
- Maximum gas pressure rating will often be listed on gas valve.
- If pressure is too high, adjust gas pressure at system regulator or contact gas utility for help.
- High gas pressure can damage gas valves, if gas pressure exceeding the rating of the valve is measured, gas valve must be replaced.

If all the LEDs are flashing
- An internal error has been detected, try resetting the control once, if problem reoccurs, replace the control

If all the LEDs are on continuously and the main burner is lit
- The control is in the run mode and is functioning properly.

Troubleshooting Sequence

Start with gas supply off and set thermostat or controller to call for heat.

Is the green Status LED on?

- NO
- Status: PV
- Flame: MV

- No power to the module.
- Check to make sure thermostat or controller is calling for heat and limit is closed.
- See instruction on previous page opposite “If the green Status LED is off”.

- YES

Pre-Purge

Continued on next page
If both Status and PV LEDs are lit, control is in trial for ignition and should be sparking.

- Check for correct spark gap on igniter.
- Check ignition cable and ground wire for continuity, replace if necessary.
- Flex ignition cable while checking continuity to check for intermittent connection.
- If ignition cable shows signs of melting, replace and reroute or shield cable.
- Check ceramic insulator around igniter for cracking or chipping, replace if needed.
- Carefully remove ignition cable from module and check for spark at module.
- If no spark at module, replace module.

If pilot fails to light, control will lockout or enter waiting period.

- If gas was flowing, wait for pilot gas to disperse.
- Reset the control and repeat the ignition sequence.
- It may take more than one ignition cycle for gas to reach the pilot after being off.
- Check electrical connections between module and pilot valve.
- When PV LED is on, check for 24 volts between PV and 24V GND on module
- If no voltage is present with PV LED on, replace the module
- Check for 24 volts at the gas valve (PV)
- If 24 volts is not present at the valve, check any safety devices in the gas valve wiring.
- Make sure the gas supply and all manual shutoffs are open.
- Check gas supply and pilot tubing for any leaks using soap and water solution or electronic detection.
- Measure gas pressure for low input pressure. Pressure must match gas input pressure listed on appliance rating plate.
- Adjust gas pressure at system regulator if necessary or contact gas utility for help.
- Check pilot orifice for lint or blockage.
- If there is gas pressure at the valve inlet and 24 volts is present at the pilot terminal on the gas valve, but no pilot flow through the valve, replace the gas valve.
Troubleshooting (continued)

Is the yellow Flame LED on?

- Flame is not being proven, control will lockout or enter waiting period.
- Check the electrical connections from the control to the flame rod or ignitor sensor.
- Make sure all connections are clean and free of corrosion or build up.
- Check the continuity of the ground wire and the sense wire or ignition cable.
- Flex ignition cable while checking continuity to check for intermittent connection.
- Check the ceramic on the flame rod or igniter/sensor for any chips or cracks, replace if needed.
- Adjust the pilot flame, if needed, to cover the flame rod with a steady, stable flame.
- Check the flame rod for build up and clean or replace if needed.
- If flame is still not being proven, replace the ignition control.

Note: If Flame LED is flashing slowly, follow these same steps to improve flame signal strength and reliability.

Normal run mode

- Check for 24 volts between MV and 24V GND on module when all LEDs are on.
- If no voltage is present, replace module.
- Check all wiring between the ignition module and the gas valve.
- Check for 24 volts at the main valve terminal on the gas valve.
- If 24 volts is not present at the valve, check any safety devices in gas valve wiring.
- If 24 volts and gas pressure are present at the gas valve and no gas is flowing through the valve, replace the gas valve.
- If gas flow is present, check for proper pilot flame positioning and measure gas pressure on the outlet side of the gas valve.
- Gas pressure should match outlet gas pressure specified on appliance rating plate.

Does the main burner light?

- When the main burner lights successfully, turn the thermostat or controller off to end the call for heat.
- The main burner and the pilot should go out quickly. All LEDs on the control should go out.
- If the pilot or the main burner remains lit for more than a few seconds, and the MV and PV LEDs are out, replace the gas valve.
- If the LEDs remain lit, check the thermostat or controller for proper operation.
- Repeat the ignition sequence several times to make sure the system is operating properly.
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2. Email your request to: rwb-customer-service@beckettcorp.com
3. Write to: R. W. Beckett Corporation, P. O. Box 1289, Elyria, OH 44036

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