This supplement must only be used by a qualified heating installer/service technician. Failure to comply could result in severe personal injury, death or substantial property damage.

- Controls must only be installed and Control Supplement used by your qualified heating installer/service technician.
- Please see the User’s Information Manual for your reference.

When calling or writing about the boiler—Please have the boiler model number from the boiler rating label and the CP number from the boiler jacket.

Failure to adhere to the guidelines on this page can result in severe personal injury, death or substantial property damage.

This control system is not offered for retrofit or conversion from standing pilot systems. The control system and instructions are intended only for factory-packaged boilers. Any attempt to apply the system components to a boiler shipped for use with a different control system will not be covered under boiler warranty and can cause severe personal injury, death or substantial property damage.

When calling or writing about the boiler—Please have the boiler model number from the boiler rating label and the CP number from the boiler jacket.

USER — Please read the following. Failure to comply could result in severe personal injury, death or substantial property damage.

- Controls must only be installed and Control Supplement used by your qualified heating installer/service technician.
- Please see the User’s Information Manual for your reference.

INSTALLER — Read all instructions before installing. Follow all instructions in proper order to prevent personal injury or death.

- U.S. only — GWA boilers must have dampers installed.
- Canada only — GWA boilers may have dampers installed.

Hazard definitions

**DANGER** Hazards that will cause severe personal injury, death or substantial property damage.

**WARNING** Hazards that can cause severe personal injury, death or substantial property damage.

**CAUTION** Hazards that will or can cause minor personal injury or property damage.

**NOTICE** Special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

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<td>11</td>
</tr>
</tbody>
</table>

Part Number 670 06 1004 00
2 Sequence of operation

1. See Table 1 "Operating Instructions" locations page 4 for heat. Damper actuator will slowly open damper.

2. When damper is fully open, ignition control powers spark generator and opens pilot valve.

3. If pilot does not light within 15 seconds — Pilot valve is closed and spark generator is turned off. The ignition control initiates a five-minute wait period. If call for heat exists after five minutes, ignition sequence starts at Step 2. If power is interrupted, the control system shuts off pilot and main gas valves and restarts at Step 1 when power is restored.

4. During main burner operation:
   a. Ignition control monitors pilot flame current. If signal is lost, main valve is closed, spark generator activated and sequence returns to Step 3.
   b. If power is interrupted, the control system shuts off pilot and main gas valves and restarts at Step 1 when power is restored.

5. Thermostat is satisfied — Pilot and main gas valves are closed. Damper will close.

6. Boiler is now in the off cycle.

7. Repeat Steps 1-6 several times to verify operation.

8. Return thermostat to normal setting.

9. Set thermostat heat anticipator setting indicated in notes in wiring diagram. See Figure 1 on page 3.

1. Bring supply wiring to boiler. Must be 14 gauge or heavier.

2. Wiring diagram on page 3. All wiring must be installed in accordance with National Electrical Code ANSI/NFPA 70 standard.

3. For your safety, turn off electrical power supply at service entrance panel before making any electrical connections to avoid possible electric shock hazard. Failure to do so can cause severe personal injury or death.

4. Wiring must be N.E.C. Class 1. Wire must be one gauge heavier than the rated current of the equipment to be used.

5. Table 1 "Operating Instructions" locations page 4.

6. WARNING: For your safety, turn off electrical power supply at service entrance panel before making any electrical connections to avoid possible electric shock hazard. Failure to do so can cause severe personal injury or death.

7. Damper must be in open position when appliance main burners are operating. If damper is not in open position, flue products such as carbon monoxide will escape into the house, causing severe personal injury or death.

5 Parts

<table>
<thead>
<tr>
<th>Item number</th>
<th>Part description</th>
<th>Boiler models</th>
<th>Vendor</th>
<th>Vendor part number</th>
<th>International Comfort Products part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ignition Control</td>
<td>GWA-052 to GWA-245</td>
<td>Honeywell</td>
<td>S8620C1003</td>
<td>51030097WT</td>
</tr>
<tr>
<td>2</td>
<td>Gas valve, ½&quot; x ½&quot;, Natural gas</td>
<td>GWA-052 to GWA-175</td>
<td>United Technologies</td>
<td>VR8204A-2001</td>
<td>510443B10WT</td>
</tr>
<tr>
<td>3</td>
<td>Pilot assembly kit with orifice and aluminum pilot gas tubing</td>
<td>GWA-052 to GWA-245</td>
<td>International Comfort Products</td>
<td>VR8304P-432</td>
<td>51030566WT</td>
</tr>
<tr>
<td>4</td>
<td>Transformer relay</td>
<td>GWA-052 to GWA-245</td>
<td>International Comfort Products</td>
<td>591391843WT</td>
<td>51032167WT</td>
</tr>
</tbody>
</table>

Table 1 "Operating Instructions" locations page 4.

GWA, spark-ignition pilot — With gas valves:
- Honeywell VR8304V-Heat
- Robertshaw 7008-P740-A-38-042
- White-Rodgers 36E-36C

- Not shown

Not shown Boiler wiring harness GWA-052 to GWA-245 International Comfort Products 591391843WT
4 Troubleshooting continued

**CHART 3: Pilot lights — Main valve will not come on — continued from previous page**

<table>
<thead>
<tr>
<th>Turn OFF supply voltage.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WARNING</strong> Electrical shock hazard. Failure to turn off power before proceeding could cause severe personal injury or death.</td>
</tr>
</tbody>
</table>

**To check ignition system grounding (instruction for continuation of Chart 3)**

- Pilot assembly and ignition control must share common ground with main burner. Nuisance shutdowns are often caused by poor or erratic ground.
- Check for good metal-to-metal contact between pilot burner bracket and main burner, and between main burner and burner rest.
- Check connection from GND (Burner) terminal on ignition control to ignition control mounting screw and from C on transformer to transformer case ground. Make sure connections are clean and tight. Wire must be damaged or deteriorated, replace with No. 18 gauge moisture-resistant, thermoplastic insulated wire with 105 °C minimum rating.

**CHART 4: Spark is present — Pilot will not light (boiler with or without damper)**

<table>
<thead>
<tr>
<th>Are pilot valve wiring connections CORRECT and securely fastened?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No</strong></td>
</tr>
</tbody>
</table>

- Connect securely to terminal PV on ignition control and terminal TR on main gas valve.

**Is pilot shutoff valve open?**

<table>
<thead>
<tr>
<th><strong>No</strong></th>
<th><strong>Yes</strong></th>
</tr>
</thead>
</table>

- Open pilot shutoff valve.
- Contact gas supplier to correct gas pressure.

**Is gas present at pilot burner assembly?**

<table>
<thead>
<tr>
<th><strong>CAUTION</strong> Remove MV wire from ignition control. Use a match taped to a long screwdriver or pilot lighter rod and manually light pilot.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No</strong></td>
</tr>
</tbody>
</table>

Make sure pilot shutoff valve is open, 24 VAC is present to pilot valve and pilot line is not kinked or obstructed. Check for clean pilot orifice. If OK, replace pilot gas valve.

**Is spark gap 0.125" and located in pilot gas stream?**

<table>
<thead>
<tr>
<th><strong>No</strong></th>
<th><strong>Yes</strong></th>
</tr>
</thead>
</table>

Replace pilot assembly. Block any draft around boiler. Check for clean pilot orifice.

---

**Figure 1** Wiring diagram — Spark-ignited pilot system

**Figure 2** Ladder Wiring Diagram

**Figure 3** Schematic Wiring Diagram
3 Operating instructions

Gas valve — Honeywell VR8204 or VR8304 — White-Rodgers 36C or 36E

FOR YOUR SAFETY READ BEFORE OPERATING

A. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

B. Before OPERATING, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. See below.

WHAT TO DO IF YOU SMELL GAS

- Do not light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor’s phone. Follow the gas supplier’s instructions.
- If you cannot reach your gas supplier, call the fire department.

OPERATING INSTRUCTIONS

1. Set the thermostat to lowest setting.
2. When equipped with Effika vent damper Model RVGP, place service switch in Hold Damper Open position.
3. Turn off all electrical power to the appliance.
4. When equipped with Johnson Controls vent damper Model M35, manually rotate damper blade in direction of arrow to Open position indicated on damper assembly.
5. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
6. Turn gas control knob clockwise to OFF. (Press down on White-Rodgers 36C valve knob to turn.)
7. When equipped with vent damper, verify damper blade is in full open position.
8. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow “B” in the safety information above. If you don’t smell gas, go to the next step.
9. Turn gas control knob counterclockwise to ON. (Press down on White-Rodgers 36C valve knob to turn.)
10. Turn on all electric power to the appliance.
11. When equipped with Johnson Controls vent damper, place service switch in Automatic Operation position.
12. Set thermostat to desired setting.
13. If the appliance will not operate, follow the instructions To Turn Off Gas To The Appliance and call your service technician or gas supplier.
14. Replace front panel.

TOTAL TURN OFF GAS TO THE APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove front panel.

4 Troubleshooting continued

CHART 3: Pilot lights — Main valve will not come on (boiler with or without damper)

Does spark stay on for more than a few seconds after pilot is established?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is 24 VAC between terminals MV and MV/PV on ignition control?</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>Replace ignition control. Retest.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Is inlet gas pressure at least 5.0&quot; w.c. and not over 13&quot; w.c.?</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>Contact gas supplier to correct.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Is main valve wiring secure at terminals?</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>Correct wiring. Retest. Replace valve. Retest.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Check for continuity of sense wire and condition of insulation.</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>NOT OK</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Replace pilot assembly. Retest.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Does system have proper flame signal?</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>Set up microammeter to measure output current in flame sensor circuit as follows.</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>a. Detach sense lead from ignition control. Attach negative lead to sense terminal on ignition control.</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>b. Attach positive lead to sense wire from pilot assembly.</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>c. Disconnect main valve lead from terminal MV on ignition control.</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>d. Energize the system. Spark should ignite the pilot. As soon as pilot is burning, microammeter should read at least 0.5 microamp for Honeywell S8620C, 0.1 microamp for U.T. 1003-510</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>e. Is flame current signal less than the minimum specified in d above?</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Replace pilot assembly. Retest.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Check for proper gas pressure, clean pilot assembly, tight mechanical and electrical connections. Also check for proper system grounding per following page.</td>
<td>****</td>
<td>****</td>
</tr>
</tbody>
</table>
4 Troubleshooting continued

<table>
<thead>
<tr>
<th>Chart 2: No spark — System (boiler with vent damper) does not work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure connections.</td>
</tr>
<tr>
<td>Check for loose wire connections or bad relay on transformer.</td>
</tr>
<tr>
<td>Check for open thermostat, circulator relay (where used), orifice wire connections, defective coil switch or rollout thermal fuse element, open LWCO or high limit contacts.</td>
</tr>
<tr>
<td>Check for out of round stack section. Does damper rotate open?</td>
</tr>
<tr>
<td>Replace damper harness, Retest.</td>
</tr>
<tr>
<td>Is damper harness securely plugged in at both ends?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Is 24 VAC present across transformers C &amp; Y?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Is 24 VAC present across terminal C and yellow wire on between damper connector and rollout thermal fuse element?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Is damper rotated open?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Is damper harness securely plugged in at both ends?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Is 24 VAC present across terminals PV and MV/PV?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Is spark present now?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Replace actuator Retest.</td>
</tr>
<tr>
<td>Open thermostat contacts for 30 seconds. Damper will rotate to closed position. Close thermostat contacts. Damper will rotate to open position. Is 24 VAC present across terminals PV and MV/PV?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Check continuity of each wire in wiring harness to damper. Does continuity exist for each wire?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Replace damper wiring harness. Retest.</td>
</tr>
<tr>
<td>Replace actuator. Retest.</td>
</tr>
<tr>
<td>Securely connect and turn ON supply voltage. Retest.</td>
</tr>
<tr>
<td>Check spark wire. Is it securely connected to ignition control?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Open thermostat contacts for 30 seconds. Damper will rotate to closed position. Close thermostat contacts. Damper will rotate to open position. Is 24 VAC present across terminals PV and MV/PV?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Check continuity of each wire in wiring harness to damper. Does continuity exist for each wire?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Replace damper wiring harness. Retest.</td>
</tr>
<tr>
<td>Replace ignition control. Retest.</td>
</tr>
<tr>
<td>Is condition of spark wire good (not brittle, burned or cracked)?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Replace pilot assembly.</td>
</tr>
<tr>
<td>Replace ignition control. Retest.</td>
</tr>
<tr>
<td>Is spark gap 0.125&quot; and located in pilot gas stream?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Replace pilot assembly.</td>
</tr>
<tr>
<td>Replace ignition control. Retest.</td>
</tr>
</tbody>
</table>

Did LWCO, spill switch or rollout thermal fuse element contacts open, determine cause and correct condition. Failure to do so will cause severe personal injury, death or substantial property damage.

5. Replace front panel.

Failure to remove jumper could result in severe personal injury or death.

6. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

7. Do not try to light any appliance.

8. Do not touch any electric switch; do not use any phone in your building.

9. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, immediately call your gas supplier. If you don't smell gas, go to the next step.

10. Move selector arm to ON.

11. Turn on all electric power to the appliance.

12. When equipped with Effika vent damper Model RVG, place service switch in Hold Damper Open position.

13. Set thermostat to desired setting.

14. Press to turn off gas to the appliance and call your service technician or gas supplier.

15. Replace front panel.

16. Move selector arm to ON.

17. Turn on all electrical power to the appliance.

18. When equipped with Effika vent damper Model M35, manually rotate damper blade in direction of arrow to Open position indicated on damper assembly.

19. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

20. Use only your hand to depress or move the selector arm. Never use tools.

21. If the selector arm will not depress or move by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

22. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and replace any part of the control system and any gas control, which has been under water.

FOR YOUR SAFETY READ BEFORE OPERATING

WARNING

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

A. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

B. Before OPERATING, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. See below.

C. Use only your hand to depress or move the selector arm. Never use tools.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and replace any part of the control system and any gas control, which has been under water.

OPERATING INSTRUCTIONS

1. Stop! Read the safety information above on this label.

2. Set the thermostat to lowest setting.

3. When equipped with Effika vent damper Model RVG, place service switch in Hold Damper Open position.

4. Turn off all electrical power to the appliance.

5. When equipped with Johnson Controls vent damper Model M35, manually rotate damper blade in direction of arrow to Open position indicated on damper assembly.

6. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

7. Depress and move selector arm to OFF. Note: Selector arm cannot be moved to OFF unless selector arm is depressed slightly. Do not force.

8. When equipped with vent damper, verify damper blade is in full open position.

9. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to the next step.

10. Move selector arm to ON.

11. Turn on all electric power to the appliance.

12. When equipped with Effika vent damper, place service switch in Automatic Operation position.

13. Set thermostat to desired setting.

14. If the appliance will not operate, follow the instructions To Turn Off Gas To The Appliance and call your service technician or gas supplier.

15. Replace front panel.

16. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

17. Use only your hand to depress or move the selector arm. Never use tools.

18. If the selector arm will not depress or move by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

19. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and replace any part of the control system and any gas control, which has been under water.

20. Use only your hand to depress or move the selector arm. Never use tools.

21. If the selector arm will not depress or move by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

22. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and replace any part of the control system and any gas control, which has been under water.

TO TURN OFF GAS TO THE APPLIANCE

1. Set the thermostat to lowest setting.

2. Turn off all electric power to the appliance if service is to be performed.

3. Remove front panel.

4. Depress and move selector arm to OFF. Do not force.

5. Replace front panel.
4 Troubleshooting

1. Move damper service switch to Hold Damper Open position. Apply call for heat to boiler. Damper blade should then rotate to open position and boiler will fire.

2. If step 1 does not open damper, manually rotate damper blade to open position using wrench or pliers on flat shaft between damper and actuator. Boiler will fire. Verify that damper service switch is in Hold Damper Open position. (Figure 2)

3. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

Before troubleshooting:

1. Have the following items:
   a. Voltmeter that can check 120 VAC and 24 VAC.
   b. Microammeter with a scale range of 0-10.
   c. Continuity checker.
   d. U-tube manometer.
2. Check for 120 VAC (minimum 102 VAC to maximum 132 VAC) to boiler.
3. Check for 24 VAC at secondary side of transformer.
4. Make sure thermostat is calling for heat and controls (including appropriate zone controls) are closed. Check for 24 VAC between thermostat wire nuts and ground.

Check the following:

1. Wire connectors to control module are securely plugged in at module and originating control.
2. Gas pressures:
   a. With boiler off — 13” w.c. maximum natural or propane gas pressure upstream of gas valve.
   b. With boiler on:
      i. 5” w.c. minimum natural gas pressure or 11” w.c. propane gas pressure upstream of gas valve.
      ii. 3.5” w.c. minimum natural gas pressure or 10” w.c. propane gas pressure downstream tapping on gas valve — Can be adjusted by regulator on gas valve.

In event of vent damper failure:

Johnson Controls vent damper

If troubleshooting chart recommends replacing actuator and actuator is not immediately available, damper blade can be fixed in an open position to allow boiler operation. Manually turning blade can cause actuator damage. Follow these instructions only in case of no heat or damper actuator malfunction.

1. Visible check —
   a. Is ground wire connected from GND (Burner) to ignition control mounting screw, and ground wire connected from transformer terminal C to case ground?

2. Visual check —
   a. Voltmeter that can check 120 VAC and 24 VAC.
   b. Microammeter with a scale range of 0-10.
   c. Continuity checker.
   d. U-tube manometer.
3. Check for 120 VAC (minimum 102 VAC to maximum 132 VAC) to boiler.
4. Check for 24 VAC at secondary side of transformer.
5. Make sure thermostat is calling for heat and controls (including appropriate zone controls) are closed. Check for 24 VAC between thermostat wire nuts and ground.

Check the following:

1. Wire connectors to control module are securely plugged in at module and originating control.
2. Gas pressures:
   a. With boiler off — 13” w.c. maximum natural or propane gas pressure upstream of gas valve.
   b. With boiler on:
      i. 5” w.c. minimum natural gas pressure or 11” w.c. propane gas pressure upstream of gas valve.
      ii. 3.5” w.c. minimum natural gas pressure or 10” w.c. propane gas pressure downstream tapping on gas valve — Can be adjusted by regulator on gas valve.

In event of vent damper failure:

Johnson Controls vent damper

If troubleshooting chart recommends replacing actuator and actuator is not immediately available, damper blade can be fixed in an open position to allow boiler operation. Manually turning blade can cause actuator damage. Follow these instructions only in case of no heat or damper actuator malfunction.

1. Move damper service switch to Hold Damper Open position. Apply call for heat to boiler. Damper blade should then rotate to open position and boiler will fire.

2. If step 1 does not open damper, manually rotate damper blade to open position using wrench or pliers on flat shaft between damper and actuator. Boiler will fire. Verify that damper service switch is in Hold Damper Open position. (Figure 2)

3. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

Before troubleshooting:

1. Have the following items:
   a. Voltmeter that can check 120 VAC and 24 VAC.
   b. Microammeter with a scale range of 0-10.
   c. Continuity checker.
   d. U-tube manometer.
2. Check for 120 VAC (minimum 102 VAC to maximum 132 VAC) to boiler.
3. Check for 24 VAC at secondary side of transformer.
4. Make sure thermostat is calling for heat and controls (including appropriate zone controls) are closed. Check for 24 VAC between thermostat wire nuts and ground.

Check the following:

1. Wire connectors to control module are securely plugged in at module and originating control.
2. Gas pressures:
   a. With boiler off — 13” w.c. maximum natural or propane gas pressure upstream of gas valve.
   b. With boiler on:
      i. 5” w.c. minimum natural gas pressure or 11” w.c. propane gas pressure upstream of gas valve.
      ii. 3.5” w.c. minimum natural gas pressure or 10” w.c. propane gas pressure downstream tapping on gas valve — Can be adjusted by regulator on gas valve.

In event of vent damper failure:

Johnson Controls vent damper

If troubleshooting chart recommends replacing actuator and actuator is not immediately available, damper blade can be fixed in an open position to allow boiler operation. Manually turning blade can cause actuator damage. Follow these instructions only in case of no heat or damper actuator malfunction.

1. Move damper service switch to Hold Damper Open position. Apply call for heat to boiler. Damper blade should then rotate to open position and boiler will fire.

2. If step 1 does not open damper, manually rotate damper blade to open position using wrench or pliers on flat shaft between damper and actuator. Boiler will fire. Verify that damper service switch is in Hold Damper Open position. (Figure 2)

3. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

Before troubleshooting:

1. Have the following items:
   a. Voltmeter that can check 120 VAC and 24 VAC.
   b. Microammeter with a scale range of 0-10.
   c. Continuity checker.
   d. U-tube manometer.
2. Check for 120 VAC (minimum 102 VAC to maximum 132 VAC) to boiler.
3. Check for 24 VAC at secondary side of transformer.
4. Make sure thermostat is calling for heat and controls (including appropriate zone controls) are closed. Check for 24 VAC between thermostat wire nuts and ground.

Check the following:

1. Wire connectors to control module are securely plugged in at module and originating control.
2. Gas pressures:
   a. With boiler off — 13” w.c. maximum natural or propane gas pressure upstream of gas valve.
   b. With boiler on:
      i. 5” w.c. minimum natural gas pressure or 11” w.c. propane gas pressure upstream of gas valve.
      ii. 3.5” w.c. minimum natural gas pressure or 10” w.c. propane gas pressure downstream tapping on gas valve — Can be adjusted by regulator on gas valve.

In event of vent damper failure:

Johnson Controls vent damper

If troubleshooting chart recommends replacing actuator and actuator is not immediately available, damper blade can be fixed in an open position to allow boiler operation. Manually turning blade can cause actuator damage. Follow these instructions only in case of no heat or damper actuator malfunction.

1. Move damper service switch to Hold Damper Open position. Apply call for heat to boiler. Damper blade should then rotate to open position and boiler will fire.

2. If step 1 does not open damper, manually rotate damper blade to open position using wrench or pliers on flat shaft between damper and actuator. Boiler will fire. Verify that damper service switch is in Hold Damper Open position. (Figure 2)

3. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

4 Troubleshooting continued

**CHART 1: No spark — System (boiler without vent damper) does not work**

**VISUALLY CHECK** — Is ground wire connected from GND (Burner) to ignition control mounting screw, and ground wire connected from transformer terminal C to case ground?

Correct by making connections.

**Check for open thermostat, circulator relay(where used), loose wire connections, defective spill switch or rollout thermal fuse element, open LWCO or limit contacts.**

If LWCO, spill switch or rollout thermal fuse element contacts are open, determine cause and correct condition. Failure to do so will cause severe personal injury, death or substantial property damage.

**Open thermostat contacts for 15 seconds. Close thermostat contacts.**

**Is 24 VAC across terminals PV & MV/PV?**

If step 1 does not open damper, manually rotate damper blade until green light turns on. Boiler will fire. (Figure 2)

Securely connect spark wire. Then turn ON supply voltage. Re-test.

**Check spark wire. Is it securely connected to spark transformer?**

**Is condition of spark wire good (not cut, brittle, burned or cracked)?**

**Is spark gap 0.125” and isolated in pilot gas stream?**

**Verify proper operation after servicing.** - See vent damper manufacturer’s instructions packed with vent damper for additional information. Failure to comply could result in severe personal injury, death or substantial property damage.

**Receive pilot assembly, turn ON supply voltage. Operate system several complete heat cycles.**

**Replace ignition control. Re-test.**

**Replace pilot assembly, turn ON supply voltage, operate system several complete heat cycles.**

**WARNING**

Electrical shock hazard. Failure to turn off power before proceeding could cause severe personal injury or death.

**DANGER**

Never jumper (bypass) rollout thermal fuse element or any other device except for momentary testing as outlined in “Troubleshooting” charts. Severe personal injury, death or substantial property damage can result.

**Burning access panel must be in position during boiler operation to prevent momentary flame rollout on ignition of main flame. Severe personal injury or substantial property damage will result.**

**WARNING**

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

**WARNING**

Never jumper (bypass) rollout thermal fuse element or any other device except for momentary testing as outlined in “Troubleshooting” charts. Severe personal injury, death or substantial property damage can result.

**WARNING**

Burning access panel must be in position during boiler operation to prevent momentary flame rollout on ignition of main flame. Severe personal injury or substantial property damage will result.
4 Troubleshooting

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

Never jumper (bypass) rollout thermal fuse element or any other device except for momentary testing as outlined in “Troubleshooting” charts. Severe personal injury, death or substantial property damage can result.

Burner access panel must be in position during boiler operation to prevent momentary flame rollout on ignition of main flame. Severe personal injury or substantial property damage will result.

Before troubleshooting:
1. Have the following items:
   a. Voltmeter that can check 120 VAC and 24 VAC.
   b. Microanometer with a scale range of 0-10.
   c. Continuity checker.
   d. U-tube manometer.
2. Check for 120 VAC (minimum 102 VAC to maximum 132 VAC) to boiler.
3. Check for 24 VAC at secondary side of transformer.
4. Make sure thermostat is calling for heat and contacts (including appropriate zone controls) are closed. Check for 24 VAC between thermostat wire nuts and ground.

Check the following:
1. Wire connectors to control module are securely plugged in at module and originating control.
2. Gas pressures:
   a. With boiler off — 13" w.c. maximum natural or propane gas pressure upstream of gas valve.
   b. With boiler on:
      • 5" w.c. minimum natural gas pressure or 11" w.c. propane gas pressure upstream of gas valve.
      • 3.5" w.c. minimum natural gas pressure or 10" w.c. propane gas pressure downstream tapping on gas valve — Can be adjusted by regulator on gas valve.
3. T urn off power to boiler.
   
   Failure to turn off power to boiler can result in severe personal injury, death or substantial property damage.

2. See vent damper manufacturer’s instructions for procedure to fix vent damper in open position.
3. Turn on power to boiler.
4. Using wrench or pliers on flat shaft section, manually rotate damper blade until green light turns on. Boiler will fire. (Figure 2)
5. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

If troubleshooting chart recommends replacing actuator and actuator is not immediately available, damper blade can be fixed in an open position to allow boiler operation. Follow these instructions only in case of no heat or damper actuator malfunction.

1. Move damper service switch to Hold Damper Open position. Apply call for heat to boiler. Damper blade should then rotate to open position and boiler will fire.
2. If step 1 does not open damper, manually rotate damper blade to open position using wrench or pliers on flat shaft between damper and actuator. Boiler will fire. Verify that damper service switch is in Hold Damper Open position. (Figure 2)
3. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

J ohnson Controls vent damper

If troubleshooting chart recommends replacing actuator and actuator is not immediately available, damper blade can be fixed in an open position to allow boiler operation. Follow these instructions only in case of no heat or damper actuator malfunction.

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1. Have the following items:
   a. Voltmeter that can check 120 VAC and 24 VAC.
   b. Microanometer with a scale range of 0-10.
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4. Make sure thermostat is calling for heat and contacts (including appropriate zone controls) are closed. Check for 24 VAC between thermostat wire nuts and ground.

Check the following:
1. Wire connectors to control module are securely plugged in at module and originating control.
2. Gas pressures:
   a. With boiler off — 13" w.c. maximum natural or propane gas pressure upstream of gas valve.
   b. With boiler on:
      • 5" w.c. minimum natural gas pressure or 11" w.c. propane gas pressure upstream of gas valve.
      • 3.5" w.c. minimum natural gas pressure or 10" w.c. propane gas pressure downstream tapping on gas valve — Can be adjusted by regulator on gas valve.
3. T urn off power to boiler.
   
   Failure to turn off power to boiler can result in severe personal injury, death or substantial property damage.

2. See vent damper manufacturer’s instructions for procedure to fix vent damper in open position.
3. Turn on power to boiler.
4. Using wrench or pliers on flat shaft section, manually rotate damper blade until green light turns on. Boiler will fire. (Figure 2)
5. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

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3. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

J ohnson Controls vent damper

If troubleshooting chart recommends replacing actuator and actuator is not immediately available, damper blade can be fixed in an open position to allow boiler operation. Follow these instructions only in case of no heat or damper actuator malfunction.

1. Move damper service switch to Hold Damper Open position. Apply call for heat to boiler. Damper blade should then rotate to open position and boiler will fire.
2. If step 1 does not open damper, manually rotate damper blade to open position using wrench or pliers on flat shaft between damper and actuator. Boiler will fire. Verify that damper service switch is in Hold Damper Open position. (Figure 2)
3. Do not leave vent damper permanently in this position. Replace actuator immediately. If vent damper is left in open position, boiler will not operate at published efficiencies.

In event of vent damper failure:
Effikal vent damper

If troubleshooting chart recommends replacing actuator and actuator is not immediately available, damper blade can be fixed in an open position to allow boiler operation. Manually turning blade can cause actuator damage. Follow these instructions only in case of no heat or damper actuator malfunction.

Verify proper operation after servicing. See vent damper manufacturer’s instructions packed with vent damper for additional information. Failure to comply could result in severe personal injury, death or substantial property damage.
## Chart 2: No spark — System (boiler with vent damper) does not work

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is damper harness securely plugged in at both ends?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is 24 VAC present across transformer terminals C &amp; Y?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is 24 VAC present across terminal C and yellow wire on between damper connector and rollout thermal fuse element?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is damper rotated open?</td>
<td>Yes</td>
</tr>
<tr>
<td>Open thermostat contacts for 30 seconds. Damper will rotate to closed position. Close thermostat contacts. Damper will rotate to open position.</td>
<td>Yes</td>
</tr>
<tr>
<td>Is 24 VAC present across terminals PV and MV/PV?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is spark present now?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Warning:**
- Failure to turn off power before proceeding could cause severe personal injury or death.
- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.

### Operating Instructions

**FOR YOUR SAFETY READ BEFORE OPERATING**

- **Warning:** If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

**A.** This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

**B.** Before OPERATING, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. See below.

**C.** Use only your hand to depress or move the selector arm. Never use tools.

**D.** Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control, which has been under water.

**WHAT TO DO IF YOU SMELL GAS**

- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

**Operating Instructions**

1. **Stop!** Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. When equipped with Effikal vent damper Model RVGP, place service switch in Hold Damper Open position.
4. Turn off all electrical power to the appliance.
5. When equipped with Johnson Controls vent damper Model M35, manually rotate damper blade in direction of arrow to Open position indicated on damper assembly.
6. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
7. Depress and move selector arm to OFF. **Note:** Selector arm cannot be moved to OFF unless selector arm is depressed slightly. Do not force.
8. When equipped with vent damper, verify damper blade is in full open position.
9. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to the next step.
10. Move selector arm to ON.
11. Turn on all electric power to the appliance.
12. When equipped with Effikal vent damper, place service switch in Automatic Operation position.
13. Set thermostat to desired setting.
14. If the appliance will not operate, follow the instructions To Turn Off Gas To The Appliance and call your service technician or gas supplier.
15. Replace front panel.

### To Turn Off Gas To The Appliance

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove front panel.
4. Depress and move selector arm to OFF. Do not force.
5. Replace front panel.
3 Operating instructions

Gas valve — Honeywell VR8204 or VR8304 — White-Rodgers 36C or 36E

FOR YOUR SAFETY READ BEFORE OPERATING

WARNING
If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

A. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
B. Before OPERATING, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. See below.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.

- Immediately call your gas supplier from a neighbor’s phone. Follow the gas supplier’s instructions.
- If you cannot reach your gas supplier, call the fire department.

OPERATING INSTRUCTIONS

1. Set the thermostat to lowest setting.
2. When equipped with Effikal vent damper Model RVGP, place service switch in Hold Damper Open position.
3. Turn off all electrical power to the appliance.
4. When equipped with Johnson Controls vent damper Model M35, manually rotate damper blade in direction of arrow to Open position indicated on damper assembly.
5. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
6. Turn gas control knob clockwise to OFF. (Press down on White-Rodgers 36C valve knob to turn.)
7. When equipped with vent damper, verify damper blade is in full open position.
8. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow “B” in the safety information above. If you don’t smell gas, go to the next step.
9. Turn gas control knob counterclockwise to ON. (Press down on White-Rodgers 36C valve knob to turn.)
10. Turn gas control knob clockwise to OFF. (Press down on 36C valve knob to turn.)
11. Turn on all electric power to the appliance.
12. When equipped with Effikal vent damper, place service switch in Automatic Operation position.
13. Set thermostat to desired setting.
14. If the appliance will not operate, follow the instructions To Turn Off Gas To The Appliance and call your service technician or gas supplier.
15. Replace front panel.

TO TURN OFF GAS TO THE APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove front panel.

4 Troubleshooting continued

CHART 3: Pilot lights — Main valve will not come on (boiler with or without damper)

| Does spark stay on for more than a few seconds after pilot is established? |
|---------------------------|-----------------|
| No | Yes |

| Is 24 VAC between terminals MV and MV/PV on ignition control? |
|-----------------|-----------------|
| No | Yes |

| Replace ignition control. Retest. |
|-----------------|-----------------|
| Correct wiring. Retest. |
| Replace valve. Retest. |

| Is main valve wiring secure at terminals? |
|-----------------|-----------------|
| No | Yes |

| CHECK FOR CONTINUITY OF SENSE WIRE AND CONDITION OF INSULATION. |
|-----------------|-----------------|
| OFF | OK |

| Replace pilot assembly. Retest. |
|-----------------|-----------------|

| Does system have proper flame signal? |
|-----------------|-----------------|
| No | Yes |

| Make sure sense wire is not wrapped around any pipe or accessories. |
|-----------------|-----------------|

| Is sense wire securely attached to sense terminal and pilot assembly? |
|-----------------|-----------------|
| No | Yes |

| Correct and retest. |
|-----------------|-----------------|

| Is sense wire or sensing probe shorted out to metal surface? |
|-----------------|-----------------|
| No | Yes |

| Correct and retest. |
|-----------------|-----------------|

| Replace pilot assembly. Retest. |
|-----------------|-----------------|

| Check for proper gas pressure, clean pilot assembly, tight mechanical and electrical connections. Also check for proper system grounding per following page. |
|-----------------|-----------------|

STOP! Do not try to light the pilot by hand.

A. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

B. Before OPERATING, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. See below.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.

- Immediately call your gas supplier from a neighbor’s phone. Follow the gas supplier’s instructions.
- If you cannot reach your gas supplier, call the fire department.
4 Troubleshooting continued

CHART 3: Pilot lights — Main valve will not come on — continued from previous page

Turn OFF supply voltage.

WARNING Electrical shock hazard. Failure to turn off power before proceeding could cause severe personal injury of death.

To check ignition system grounding (instruction for continuation of Chart 3)

- Check ground lead from GND (Burner) terminal on ignition control to ignition control mounting screw and from C on transformer to transformer case ground. Make sure connections are clean and tight. If wire is damaged or deteriorated, replace with No. 18 gauge moisture-resistant, thermoplastic insulated wire with 105 °C minimum rating.

- Block any draft around boiler. Check for clean pilot orifice.

- Is spark gap 0.125" and located in pilot gas stream?

  - No
  - Yes

- Replace pilot assembly.

- Make sure pilot shutoff valve is open, 24 VAC is present to pilot valve and pilot line is not kinked or obstructed. Check for clean pilot orifice. If OK, replace pilot gas valve.

- Is spark gap 0.125" and located in pilot gas stream?

  - No
  - Yes

- Replace pilot assembly.

- Open pilot shutoff valve.

- Contact gas supplier to correct gas pressure.

- Is inlet gas pressure at least 5.0" w.c. and not over 14" w.c.?

  - No
  - Yes

- Is gas present at pilot burner assembly?

  - No
  - Yes

- Remove MV wire from ignition control. Use a match taped to a long screwdriver or pilot lighter rod and manually light pilot.

- Is pilot shutoff valve open?

  - No
  - Yes

- Connect securely to terminal PV on ignition control and terminal TR on main gas valve.

- Are pilot valve wiring connections CORRECT and securely fastened?

  - No
  - Yes

CHART 4: Spark is present — Pilot will not light (boiler with or without damper)

- Is pilot shutoff valve open?

  - No
  - Yes

- Open pilot shutoff valve.

- Contact gas supplier to correct gas pressure.

- Is gas present at pilot burner assembly?

  - No
  - Yes

- Remove MV wire from ignition control. Use a match taped to a long screwdriver or pilot lighter rod and manually light pilot.

- Is spark gap 0.125" and located in pilot gas stream?

  - No
  - Yes

- Replace pilot assembly.

- Block any draft around boiler. Check for clean pilot orifice.

- Is pilot shutoff valve open?

  - No
  - Yes

- Open pilot shutoff valve.

- Contact gas supplier to correct gas pressure.

- Is gas present at pilot burner assembly?

  - No
  - Yes

- Remove MV wire from ignition control. Use a match taped to a long screwdriver or pilot lighter rod and manually light pilot.

- Is spark gap 0.125" and located in pilot gas stream?

  - No
  - Yes

- Replace pilot assembly.

- Block any draft around boiler. Check for clean pilot orifice.

- Is pilot shutoff valve open?

  - No
  - Yes

- Open pilot shutoff valve.

- Contact gas supplier to correct gas pressure.

- Is gas present at pilot burner assembly?

  - No
  - Yes

- Remove MV wire from ignition control. Use a match taped to a long screwdriver or pilot lighter rod and manually light pilot.

- Is spark gap 0.125" and located in pilot gas stream?

  - No
  - Yes

- Replace pilot assembly.

- Block any draft around boiler. Check for clean pilot orifice.

- Is pilot shutoff valve open?

  - No
  - Yes

- Open pilot shutoff valve.

- Contact gas supplier to correct gas pressure.

- Is gas present at pilot burner assembly?

  - No
  - Yes

- Remove MV wire from ignition control. Use a match taped to a long screwdriver or pilot lighter rod and manually light pilot.

- Is spark gap 0.125" and located in pilot gas stream?

  - No
  - Yes

- Replace pilot assembly.

- Block any draft around boiler. Check for clean pilot orifice.
2 Sequence of operation

1. See Table 1 for "Operating Instructions" page number locations. Raise room thermostat to call for heat. Damper actuator will slowly open damper.

2. When damper is fully open, ignition control powers spark generator and opens pilot valve. Damper must be in open position when appliance main burners are operating. If damper is not in open position, flue products such as carbon monoxide will escape into the house, causing severe personal injury or death.

3. If pilot does not light within 15 seconds — Pilot valve is closed and spark generator is turned off. The ignition control initiates a five-minute wait period. If call for heat exists after five minutes, ignition sequence starts at Step 2. If pilot and ignition control senses flame current — Main valve opens and spark generator is turned off.

4. During main burner operation:
   a. Ignition control monitors pilot flame current. If signal is lost, main valve is closed, spark generator activated and sequence returns to Step 3.
   b. If power is interrupted, the control system shuts off pilot and main gas valves and restarts at Step 1 when power is restored.

5. Thermostat is satisfied — Pilot and main gas valves are closed. Damper will close.

6. Boiler is now in the off cycle.

7. Repeat Steps 1-6 several times to verify operation.

8. Return thermostat to normal setting.

9. Set thermostat heat anticipator setting indicated in notes in wiring diagram. See Figure 1 on page 3.

5 Parts

<table>
<thead>
<tr>
<th>Item number</th>
<th>Part description</th>
<th>Boiler models</th>
<th>Vendor</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ignition Control</td>
<td>GWA-052 to GWA-245</td>
<td>International Comfort Products</td>
<td>51 1330097WT</td>
</tr>
<tr>
<td>2</td>
<td>Gas valve, ½&quot; x ½&quot;, Natural gas</td>
<td>GWA-052 to GWA-175</td>
<td>Honeywell</td>
<td>51 1044381WT</td>
</tr>
<tr>
<td>3</td>
<td>Pilot assembly kit with orifice and aluminum pilot gas tubing</td>
<td>GWA-052 to GWA-245</td>
<td>International Comfort Products</td>
<td>51 1330166WT</td>
</tr>
<tr>
<td>4</td>
<td>Transformer relay</td>
<td>GWA-052 to GWA-245</td>
<td>510312167WT</td>
<td></td>
</tr>
</tbody>
</table>

1 Boiler wiring

For your safety, turn off electrical power supply at service entrance panel before making any electrical connections to avoid possible electric shock hazard. Failure to do so can cause severe personal injury or death.

Wiring must be NEC Class 1.

1. Bring supply wiring to boiler. Must be 14 gauge or heavier.

2. See wiring diagram on page 3. All wiring must be installed in accordance with:

   - U.S.A. — National Electrical Code and any other national, state or local code requirements.
   - Canada — CSA C22.1 Canadian Electrical Code Part 1 and any other national, state or local code requirements.

   Transformer relay — With gas valve:

   - United Technologies part number 1003-511
   - Robertshaw part number 7200ER 7AO-A1B-042
   - White-Rodgers part number 36E36-266

---

Table 1

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<tr>
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<td>Transformer relay</td>
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<td>510312167WT</td>
<td></td>
</tr>
</tbody>
</table>
Hazard definitions

**DANGER** Hazards that will cause severe personal injury, death or substantial property damage.

**WARNING** Hazards that can cause severe personal injury, death or substantial property damage.

**CAUTION** Hazards that will or can cause minor personal injury or property damage.

**NOTICE** Special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

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<td>4 Troubleshooting</td>
<td>6-10</td>
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<tr>
<td>5 Parts</td>
<td>11</td>
</tr>
</tbody>
</table>

**WARNING** INSTALLER — Read all instructions before installing. Follow all instructions in proper order to prevent personal injury or death.

- U.S. only — GWA boilers must have dampers installed.
- Canada only — GWA boilers may have dampers installed.

**WARNING** USER — Please read the following. Failure to comply could result in severe personal injury, death or substantial property damage.

- Controls must only be installed and Control Supplement used by your qualified heating installer/service technician.
- Please see the User’s Information Manual for your reference.

**WARNING** This supplement must only be used by a qualified heating installer/service technician. Failure to comply could result in severe personal injury, death or substantial property damage.

**NOTICE** When calling or writing about the boiler — Please have the boiler model number from the boiler rating label and the CP number from the boiler jacket.

**WARNING** Failure to adhere to the guidelines on this page can result in severe personal injury, death or substantial property damage.

This control system is not offered for retrofit or conversion from standing pilot systems. The control system and instructions are intended only for factory-packaged boilers. Any attempt to apply the system components to a boiler shipped for use with a different control system will not be covered under boiler warranty and can cause severe personal injury, death or substantial property damage.

When calling or writing about the boiler — Please have the boiler model number from the boiler rating label and the CP number from the boiler jacket.