Controls must only be installed by a Weil-McLain distributor or other qualified installer/service technician in accordance with this Supplement and all applicable codes and requirements of the authority having jurisdiction. Read this Control Supplement completely before beginning the installation. If the information in this Supplement is not followed exactly, a fire, explosion, carbon monoxide emission or other hazardous conditions can result, causing severe personal injury, death or substantial property damage.
Please read this page first!

Hazard definitions

The following defined terms are used throughout these instructions to bring attention to the presence of hazards of various risk levels or to important information concerning the life of the product.

**DANGER** Indicates presence of hazards that will cause severe personal injury, death or substantial property damage.

**WARNING** Indicates presence of hazards that can cause severe personal injury, death or substantial property damage.

**CAUTION** Indicates presence of hazards that will or can cause minor personal injury or property damage.

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

Note to the installer

**WARNING** This system is used on gas-fired boilers without vent dampers as shipped from the factory. This system is not offered for retrofit. Any attempt to apply the system components to boilers 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.

**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.
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Control installation — EGH-85 & 95 Series 4 only water boilers

Schematic Wiring Diagram

Ladder Wiring Diagram

- Standing pilot
- Natural gas
- Forced gravity hot water
- Without tankless heater
Control installation — EGH-85 & 95 Series 4 only water boilers

For your safety, turn off electrical power supply and turn off external gas supply valve before attempting to work on the boiler. Failure to comply can cause severe personal injury, death or substantial property damage.

1. Mount and wire controls per wiring diagram, page 4, and Figure 1.
   a. Attach junction box inside left jacket panel with #8-32 x ½” machine screws and green ground nuts provided.
   b. Install transformer with plug-in relay receptacle and relay. In Canada, use chain and hook strain relief.
   c. Operating and limit circuit wiring must be 18 gauge or heavier (as supplied with the boiler).

2. Bring supply wiring to boiler. Must be 14 gauge or heavier.
Control Supplement — Standing Pilot Boilers

Control installation — PFG-6 & 7 water boilers

For your safety, turn off electrical power supply and turn off external gas supply valve before attempting to work on the boiler. Failure to comply can cause severe personal injury, death or substantial property damage.

1. Mount and wire controls per wiring diagram, page 6, and Figure 2.

2. Operating and limit circuit wiring must be 18 gauge or heavier (as supplied with the boiler).

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

![Figure 2]

- Draft hood
- Relief valve
- Transformer/relay
- Gas valve
- Thermopile lead wire
Control installation — EGH-85 & 95 steam boilers
For your safety, turn off electrical power supply and turn off external gas supply valve before attempting to work on the boiler. Failure to comply can cause severe personal injury, death or substantial property damage.

1. Mount and wire controls per wiring diagram, page 8, and Figure 3.
   a. Attach junction box inside left jacket panel with #8-32 x ½” machine screws and green ground nuts provided.
   b. Install transformer with plug-in relay receptacle and relay. In Canada, use chain and hook strain relief.
   c. Operating and limit circuit wiring must be 18 gauge or heavier.

2. Bring supply wiring to boiler. Must be 14 gauge or heavier.
Control installation — EGH-85 & 95 steam boilers

Ladder Wiring Diagram

Schematic Wiring Diagram

Legend:
- 120 VAC FACTORY WIRING
- LOW VOLTAGE FACTORY WIRING
- LOW VOLTAGE FIELD WIRING

Part Number 550-110-031/1112
Part Number 550-110-031/1112

Control Supplement — Standing Pilot Boilers

with float-type low water cutoff

WARNING  For your safety, turn off electrical power supply and turn off external gas supply valve before attempting to work on the boiler. Failure to comply can cause severe personal injury, death or substantial property damage.

1. Mount and wire controls per wiring diagram, page 10, and Figure 4.
   a. Attach junction box inside left jacket panel with #8-32 x ½" machine screws and green ground nuts provided.
   b. Install transformer with plug-in relay receptacle and relay. In Canada, use chain and hook strain relief.
   c. Operating and limit circuit wiring must be 18 gauge or heavier (as supplied with the boiler).

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

Figure 4

Anticipator settings

Water — 0.40 amps, single zone systems only. For multiple zones using zone valves or circulators, refer to component manufacturer's instructions for application, wiring and thermostat heat anticipator setting.

Steam — 0.20 amps.

Checkout procedure

1. Follow all instructions in the boiler manual, including the Checkout procedure, before proceeding.
2. See page 12 for "Lighting instructions". Raise room thermostat to call for heat.
3. Gas valve will open and main burners will ignite.
4. Lower thermostat setting. Main burner flames will go out.
5. Repeat steps 1 through 3 several times to verify operation.
6. Return thermostat to normal setting.
Lighting instructions — Robertshaw 7000ERHC

FOR YOUR SAFETY READ BEFORE LIGHTING

**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 has a pilot, which must be lighted by hand. When lighting the pilot, follow these instructions exactly.

B. Before LIGHTING, 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.

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

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.

LIGHTING INSTRUCTIONS

1. **Stop!** Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electrical power to the appliance.
4. Depress gas control knob slightly and turn clockwise to **OFF**.

Gas control knob (shown in **ON** position)

Note: Gas control knob cannot be turned to **OFF** unless knob is depressed slightly. Do not force.

5. 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.
6. Remove access panel located above burners.
7. Find pilot — follow metal tube from gas control. The pilot is between two burners behind the access 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 gas control knob slightly and turn clockwise to **OFF**.
5. Replace front panel.

8. Turn gas control knob counterclockwise to **PILOT**.
9. Depress gas control knob and hold. Immediately light the pilot with a match. Continue to hold gas control knob in for about one (1) minute after the pilot is lit.
   - If pilot can be lit without depressing gas control knob, turn gas knob clockwise to **OFF** and call your service technician or gas supplier.
   - If gas control knob stays depressed after release, stop and immediately call your service technician or gas supplier.
   - If the pilot will not stay lit after several tries, turn the gas control knob clockwise to **OFF** and call your service technician or gas supplier.
11. Replace access panel.
12. Turn gas control knob counterclockwise to **ON**.
13. Turn on all electric power to the appliance.
14. Set thermostat to desired setting.
15. Replace front panel.
Verify proper operation after servicing

**WARNING** Never jumper (bypass) any device except for momentary testing as outlined in troubleshooting chart below. Substantial property damage and/or severe personal injury could occur.

**DANGER** 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.

**WARNING** Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation leading to severe personal injury, death or substantial property damage.

**Before troubleshooting:**
1. Have a voltmeter that can check 120VAC, 24VAC, and a continuity tester.
2. Check for 120VAC (minimum 102 to maximum 132) to boiler.
3. Be sure pilot is lit. See “Lighting instructions” on page 12 for details.
4. Make sure thermostat is calling for heat and contacts (including appropriate zone controls) are closed. Check for 24VAC between thermostat wire nuts and ground.

**Pilot does not stay lit — Troubleshooting thermopile and high limit control circuit**

1. Checking thermopile open system (Figure 5):
   a. Use an electronic multimeter, with leads fitted with alligator clips. Set meter scale to DC Millivolts.
   b. Unscrew thermopile fitting from gas valve.
   c. Attach one meter lead to the end of the thermopile gas valve fitting.
   d. Attach other meter lead to thermopile lead (copper surface).
   e. Follow Lighting Instruction label on boiler (also found in Control Supplement or User's Information manual) to light the pilot burner only and hold the pilot flame manually. (DO NOT light main burner.)
   f. Check the reading on the multimeter. The reading should be around 700 millivolts.
   g. If multimeter reading is significantly less than above, replace the thermopile.
2. Checking thermopile circuit closed system (Figure 6):
   a. Use an electronic multimeter, with leads fitted with alligator clips. Set meter scale to DC Millivolts.
   b. Loosen the insulated terminal on the TOP thermopile lead wire enough to allow clipping a multimeter alligator clip to the spade terminal.
   c. Attach the other multimeter lead to the thermopile lead.
   d. Check the reading on the multimeter. The reading should be around 400 millivolts.
   e. If reading is significantly less than 400 millivolts, check tightness of lead wire assembly in gas valve. If the connections are secure and you have checked the thermopile per step 1 above, replace the thermopile lead wire assembly.
   f. If reading on TOP thermopile lead wire is around 400 millivolts, move the multimeter alligator clip to the BOTTOM thermopile lead wire terminal and check multimeter reading.
   g. If multimeter does not read around 400 millivolts, check wiring connections and wire integrity to the limit controls.
   h. Check voltage at each limit terminal to make sure limit is closed. Correct pressure or temperature condition causing any limit to be open. Replace limit if necessary.
Chart 1: **Boiler will not fire - boilers without tankless**

<table>
<thead>
<tr>
<th>Secure connections.</th>
<th>Is damper harness securely plugged in at both ends?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Check for loose wire connections or bad relay on transformer.

Check for open thermostat, LWCO, or high limit contacts or check for loose wire connections.

**DANGER** If LWCO, contacts are open, determine cause and correct condition. Failure to do so will cause severe personal injury, death or substantial property damage.

Check/repair out of round stack section. Does vent damper rotate open?

| No                  | Yes |

Replace actuator. Retest.

Open thermostat contacts for 30 seconds. Vent damper will rotate to closed position. Close thermostat contacts. Vent damper will rotate to open position. Is 24VAC present across gas valve terminals?

| No                  | Yes |

Check continuity of each wire in damper harness. Does continuity exist for each wire? See Table below.

| No                  | Yes |

Replace damper wiring harness. Retest.

Remove damper harness from damper harness plug. TEMPORARILY install jumper between terminal 2 and terminal 5 on damper plug in boiler wiring harness. See figure, right. Does boiler fire?

| No                  | Yes |


<table>
<thead>
<tr>
<th>Damper Harness Continuity Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Pin Molex Pin Number</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
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</tbody>
</table>

Turn gas valve cock to ON position. Retest. Replace gas valve. Retest.
Chart 2: Boiler will not fire — boilers with tankless

<table>
<thead>
<tr>
<th>Secure connections.</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check for loose wire connections or bad combination control.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check for open thermostat, LWCO, or high limit contacts or check for loose wire connections.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DANGER</strong> If LWCO, contacts are open, determine cause and correct condition. Failure to do so will cause severe personal injury, death or substantial property damage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check/repair out of round stack section. Does vent damper rotate open?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Replace actuator. Retest.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open thermostat contacts for 30 seconds. Vent damper will rotate to closed position. Close thermostat contacts. Vent damper will rotate to open position. Is 24VAC present across gas valve terminals?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is main flame on now?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is gas valve cock turned to ON position?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Turn gas valve cock to ON position. Retest.</td>
<td>Replace gas valve. Retest.</td>
<td></td>
</tr>
<tr>
<td>Replace damper wiring harness. Retest.</td>
<td>Remove damper harness from damper harness plug. TEMPORARILY install jumper between terminal 2 and terminal 5 on damper plug in boiler wiring harness. See figure, right. Does boiler fire?</td>
<td></td>
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**Damper Harness Continuity Table**

<table>
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<th>6 Pin Molex Pin Number</th>
<th>4 Pin Molex Pin Number</th>
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</tr>
<tr>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Not used</td>
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</table>

*Pin side of connectors*
### EGH-85 & 95 Series 4 & 5 and PFG-6 & 7 Series 6 & 7

#### Parts

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<tr>
<th>Description</th>
<th>Manufacturer</th>
<th>Manufacturer’s part number</th>
<th>Weil-McLain part number</th>
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<tbody>
<tr>
<td>Main burner</td>
<td>Weil-McLain</td>
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<td>512-200-000</td>
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<tr>
<td>EGH-85 &amp; 95</td>
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<td>512-200-022</td>
</tr>
<tr>
<td>PFG-6 &amp; 7</td>
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<td></td>
<td></td>
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<tr>
<td>Main burner with pilot bracket</td>
<td>Weil-McLain</td>
<td></td>
<td>512-200-001</td>
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<tr>
<td>EGH-85 &amp; 95</td>
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<td></td>
<td>512-200-023</td>
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<tr>
<td>PFG-6 &amp; 7</td>
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<td></td>
<td></td>
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<td>Pilot burner, standing pilot</td>
<td>Honeywell</td>
<td>Q327A1642</td>
<td>511-330-186</td>
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<tr>
<td>Pilot Orifice</td>
<td>Honeywell</td>
<td>K14 388146KR</td>
<td>560-528-957</td>
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<td>Propane Gas</td>
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<tr>
<td>Thermopile, 36” long</td>
<td>Robertshaw</td>
<td>CP-2</td>
<td>511-724-259</td>
</tr>
<tr>
<td>Second pressuretrol wire harness</td>
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<td>591-391-825</td>
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<td>Thermopile lead wire, 5”</td>
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<td></td>
<td>590-850-561</td>
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<td>Gas valve</td>
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<td>¾” x 1”, Natural gas, 24V</td>
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<td>511-044-506</td>
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<tr>
<td>¾” x 1”, Propane gas, 24V</td>
<td>Robertshaw</td>
<td>7000ERHC-S7C</td>
<td>511-044-505</td>
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<td>Wiring harness</td>
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<td>PFG-6 &amp; 7</td>
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<td>EGH-85 &amp; 95, Series 4 Only - Water</td>
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