WEIL-McLAIN

CG Series 12
Standing Pilot Ignition System

For Natural or Propane Gas-Fired Boilers

WARNING
Controls must only be installed by and Control Supplement used by a qualified installer/service technician. 
Read all instructions before installing. Failure to follow all instructions in proper order can cause severe 
personal injury, death or substantial property damage.

Part Number 550-110-675/0996DCP
These boilers must have dampers installed:
• CG 25-8 Natural or Propane Gas - U.S. only

These boilers may have damper installed:
• CG 25-8 Natural or Propane Gas - Canada only

IMPORTANT: When calling or writing about the boiler, PLEASE GIVE THE MODEL listed on the boiler rating label AND THE CP NUMBER found next to the rating label.

GENERAL INFORMATION:
This system is used on gas-fired boilers with vent dampers as shipped from the factory.

WARNING: 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.

The following defined terms are used throughout this manual. They 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 hazard which will cause severe personal injury, death or substantial property damage if ignored.

**CAUTION** indicates presence of hazard which will or can cause minor personal injury or property damage if ignored.

**WARNING** indicates presence of hazard which can cause severe personal injury, death or substantial property damage if ignored.

**NOTICE** indicates special instructions on installation, operation, or maintenance which are important but not related to personal injury hazards.
Section A: Vent Damper Installation

1. **NOTICE** Boiler will not operate without damper installed.

**WARNING** Only dampers listed on page 10 are approved for use on CG Series 12 SPD boilers. Any other damper installed can cause severe personal injury or death.

2. Minimum clearances:
   - 6" between damper and combustible material.
   - 36¼" between jacket top and combustible ceiling.

**DANGER** DO NOT modify draft hood or damper, or make another connection between draft hood and damper or boiler except as noted in #3 below. A.G.A./C.G.A. certification will be void. Any changes will cause severe personal injury, death or substantial property damage.

3. Install vent damper horizontally or vertically as shown in damper manufacturer's instructions. See Figures 1 or 2 and 3. Damper must be installed so that it serves only one boiler, and so damper blade indicator is visible to homeowner.

Where screws or rivets are used to secure damper to draft hood, they must not interfere with free movement of damper blade.

4. Install damper harness between damper actuator and knock-out in jacket top panel. Use strain relief connectors and locknuts to secure both ends of damper harness. See Figure 3.

**CAUTION** Keep wiring harness clear of all hot surfaces.

**WARNING** LINE UP KEYWAY WHEN CONNECTING PLUGS. FORCING A MISMATCH CAN CAUSE A HAZARDOUS CONDITION.

**KEY KEYWAY**

5. Plug damper harness receptacle into damper harness plug. See Figure 3.

**DANGER** Bypassing (jumping) vent damper will cause flue products such as carbon monoxide to escape into house. This will cause severe personal injury or death.

**CAUTION** After boiler has operated once, if either end of harness is disconnected, system safety shutdown will occur. Boiler will not operate until harness is reconnected.

6. Effikal damper — damper hold open switch must be in "Automatic Operation" position for system to operate properly.

7. Apply label shown in step 4 to damper, so that it is visible after installation.

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**Effikal Damper**
Figure 1

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**Johnson Damper**
Figure 2

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**Figure 3**
Section B: Check-Out Procedure

1. See pages 7 thru 9 for lighting instructions. Raise room thermostat to call for heat. Damper actuator will slowly open damper.

2. When damper is fully open, main gas valve will open and main burners will ignite.

**DANGER** Damper must be fully open before main burners light. If damper does not fully open, flue products such as carbon monoxide will escape into house, causing severe personal injury or death.

3. Lower thermostat setting. Main burner flames will go out, then damper will close.

4. Repeat steps 1–3 several times to verify operation.

5. Return thermostat to normal setting.

6. Set thermostat heat anticipator setting indicated on wiring diagram.

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**SCHEMATIC WIRING DIAGRAM**

**LADDER WIRING DIAGRAM**

**WARNING**

ELECTRICAL SHOCK HAZARD. CAN CAUSE SEVERE INJURY OR DEATH. DISCONNECT POWER BEFORE INSTALLING AND/OR SERVICING.

NOTES:
1. All wiring must be installed in accordance with:
   a. U.S.A. national electrical code and any other national, state or local code requirements.
   b. Canada: C.E.A. COE Canadian Electrical Code Part 1 and any other national, provincial, or local code requirements.
2. All contacts shown without power applied off shelf condition.
3. If original rollout type wire as supplied with the appliance must be replaced. Type 2016 wire or its equivalent must be used. If other original wire as supplied with the appliance must be replaced, type 2016 or its equivalent must be used.
4. Refer to control component instructions packed with boilers for application information.
5. Thermostat: For single zone systems, thermostat anticipator setting is 6 damps. For multiple zone systems using zone valves or circulators, refer to component manufacturer's instructions for application wiring and thermostat anticipator setting. Refer to EMCS for status connection in place of thermostat. Refer to EMCS INSTALLATION OPERATING MANUAL.
6. L.W.C.O., additional high limit, etc., wired in series.
7. Denotes field installed chassis ground.

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Weil-McLain
A United Dominion Company

CG
25 thru 8

- Standing Pilot
- Natural Gas
- Forced Hot Water

PART NUMBER 550-223-798/0196WM
Section C: Troubleshooting

VERIFY PROPER OPERATION AFTER SERVICING

**WARNING**
Never jumper (bypass) any device except for momentary testing as outlined in Troubleshooting Charts. Substantial property damage and/or severe personal injury could result.

**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.

1. Before troubleshooting:
   a. Have a voltmeter that can check 120VAC, 24VAC, and a continuity tester.
   b. Check for 120VAC (min. 102 – max. 132) to boiler.
   c. Be sure pilot is lit. See pages 7 thru 9 for instructions.
   d. Make sure thermostat is calling for heat and contacts (including appropriate zone controls) are closed. Check for 24VAC between thermostat wire nuts and ground.

IN EVENT OF ACTUATOR FAILURE

—EFFIKAL 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 above 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.

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

See damper manufacturer’s instructions packed with damper for additional information.

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---JOHNSON DAMPER
If troubleshooting chart recommends replacing actuator, and actuator is not immediately available, damper blade can be fixed in open position to allow boiler operation. Follow these instructions only in case of no heat or damper actuator malfunction. See Figure 5.

1) Turn off power to boiler.

**WARNING** Failure to turn off power to boiler can result in severe personal injury, death or substantial property damage.

2) Remove damper actuator cover.
3) On PC board, remove wire from A to B.
4) Turn on power to boiler.
5) Using wrench or pliers on flat shaft section, manually rotate damper blade until green light turns on. Boiler will fire.
6) Do not leave damper permanently in this position. Replace actuator immediately. If damper is left in open position, boiler will not operate at published efficiencies.

See damper manufacturer’s instructions packed with damper for additional information.

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BOILER WILL NOT FIRE

1. Secure connections.
   - Is damper harness securely plugged in at both ends?
     - No
     - Yes
   - Check for loose wire connections or bad relay on transformer.
     - No
     - Yes
   - Check for open thermostat, LWCO, high limit, spill switch or rollout thermal fuse element contacts or check for loose wire connections.
     - **DANGER**
     - 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.
   - Is 24 VAC present across terminals C and Y on transformer?
     - No
     - Yes
   - Is 24 VAC present across terminal C on transformer and Yellow wire of damper harness?
     - No
     - Yes
   - Check/repair out of round stack section. Does damper rotate open?
     - No
     - Yes
   - Replace actuator.
   - Is damper rotated open?
     - No
     - Yes
   - Replace actuator.

Is 24 VAC present across gas valve terminals?
- No
- Yes

Check continuity of each wire in damper harness. Does continuity exist in each wire? See attached chart.
- No
- Yes

- Remove damper harness from damper harness plug. TEMPORARILY install jumper between terminal 2 and terminal 5 on plug. Does boiler fire?
- No
- Yes

- Replace damper harness.
- Replace gas valve.
- Replace actuator.

Main flame on now?
- No
- Yes

Is gas valve cock turned to "ON" position?
- No
- Yes

Turn gas valve cock to "ON" position.

Replace gas valve.

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**Legend:**

1. Operate system several complete cycles after this step.

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**Damper Harness Continuity Table**

<table>
<thead>
<tr>
<th>6 Pin Molex Pin Number</th>
<th>4 Pin Mollex Pin Number</th>
</tr>
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<td>5</td>
<td>2</td>
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**Pin Side of Connectors**

<table>
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<th>Pin Side of Connectors</th>
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</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
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</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
</tbody>
</table>
NATURAL GAS WITH HONEYWELL VR8200/VR8300 GAS VALVE

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.

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.

C. Use only your hand to push down the reset button or turn the gas control knob. Never use tools. If the knob or reset button will not operate by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

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.

LIGHTING 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 RVQP, place service switch in "HOLD DAMPER OPEN" position. See Control Supplement for additional information.

4. Turn off all electric power to the appliance.

5. When equipped with Johnson vent damper Model M35, manual rotate damper blade in direction of arrow to OPEN position indicated on damper assembly. See Control Supplement for additional information.

6. Turn gas control knob clockwise to "OFF."

7. When equipped with vent damper, verify damper blade is in full open position. See Control Supplement for additional information.

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 on this label. If you don't smell gas, go to the next step.

9. Remove access panel located above burners.

10. Find pilot — follow metal tube from gas control. The pilot is between two burners behind the access panel.

11. Turn gas control knob counterclockwise to "PILOT."

12. Push in red reset button and hold. Immediately light the pilot with a match. Continue to hold reset button in for about one (1) minute after the pilot is lit.

- If reset button 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.

14. Replace access panel.

15. Turn gas control knob counterclockwise to "ON."

16. Turn on all electric power to the appliance.

17. When equipped with Effikal vent damper, place service switch in "AUTOMATIC OPERATION" position.

18. Set thermostat to desired setting.

19. Replace front panel.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.

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

3. Turn gas control knob clockwise to "OFF."

4. Replace front panel.

550-223-038 (1192)
PROpane gas with Honeywell VR8200/VR8300 Gas Valve

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.

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.

C. If you cannot reach your gas supplier, call the fire department.

D. Use only your hand to push down the reset button or turn the gas control knob. Never use tools. If the knob or reset button will not operate by hand, don’t try to repair it; call a qualified service technician. Force or attempted repair may result in a fire or explosion.

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.

Lighting 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. See Control Supplement for additional information.

4. Turn off all electric power to the appliance.

5. When equipped with Johnson vent damper Model M35, manually rotate damper blade in direction of arrow to OPEN position indicated on damper assembly. See Control Supplement for additional information.

6. Turn gas control knob clockwise to “OFF.”

7. When equipped with vent damper, verify damper blade is in full open position. See Control Supplement for additional information.

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 on this label. If you don’t smell gas, go to the next step.

9. Remove access panel located above burners.

10. Find pilot — follow metal tube from gas control. The pilot is between two burners behind the access panel.

11. Turn gas control knob counterclockwise to “PILOT.”

12. Push in red reset button and hold. Immediately light the pilot with a match. Continue to hold reset button in for about one (1) minute after the pilot is lit.

   - If reset button 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.

14. Replace access panel.

15. Turn gas control knob counterclockwise to “ON.”

16. Turn on all electric power to the appliance.

17. When equipped with Effikal vent damper, place service switch in “AUTOMATIC OPERATION” position.

18. Set thermostat to desired setting.

19. Replace front panel.

To Turn Off Gas to Appliance

1. Set the thermostat to lowest setting.

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

3. Turn gas control knob clockwise to “OFF.”

4. Replace front panel.

550-223-040 (1192)
## Section D: Parts

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Vendor Part Number</th>
<th>W-M Part No.</th>
<th>W-M Sales Reference No.</th>
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<td>Damper assembly</td>
<td>Effikal RVGP-KS-4BK</td>
<td>381-800-474</td>
<td>10C461</td>
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<td>4&quot; (CG-25 and 3)</td>
<td>Johnson Q35GB-2 consisting of M35BC actuator and Y15 vent pipe</td>
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<tr>
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<td>381-800-475</td>
<td>10C462</td>
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<td>6&quot; (CG-5 and 6)</td>
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<td>7&quot; (CG-7 and 8)</td>
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<td>10C463</td>
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<td>Damper actuator</td>
<td>Effikal RVGP [Effikal Only]</td>
<td>510-512-337</td>
<td>10C465</td>
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<td>Johnson M35BE-1C (Johnson only)</td>
<td>510-312-255</td>
<td>10C056</td>
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<td>Damper harness</td>
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<td>Boiler wiring harness</td>
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<td>Pilot replacement kit for natural gas</td>
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<td>Pilot replacement kit for propane gas</td>
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**WARNING** Only dampers listed above are approved for use on CG Series 12 SPD boilers. Any other damper installed can cause severe personal injury or death.