

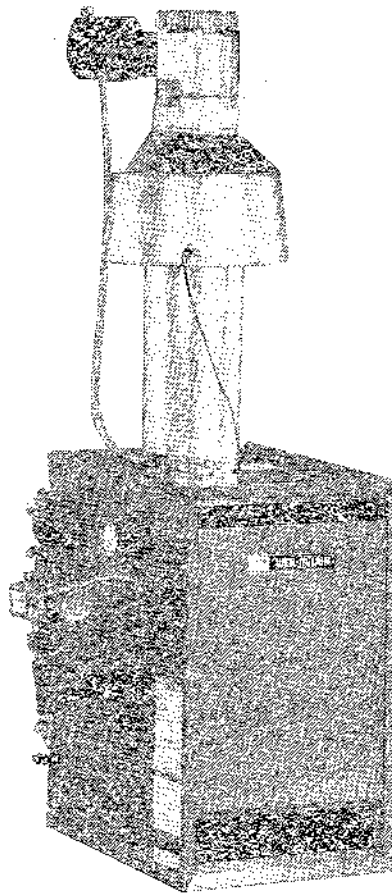
# WEIL-McLAIN



**CG Series 12**

**Standing Pilot Ignition System**

**Gas  
Control  
Supplement**



**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.



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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.

#### WARNING

indicates presence of hazard which can 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.

#### 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.

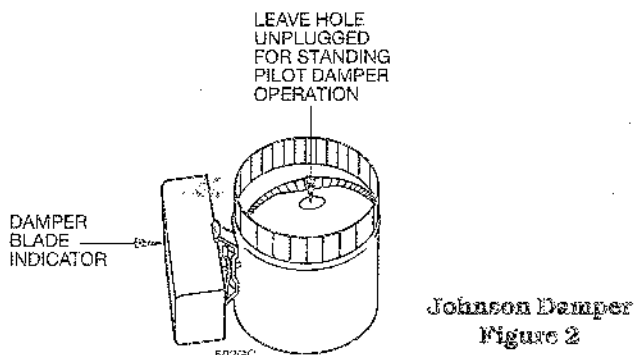
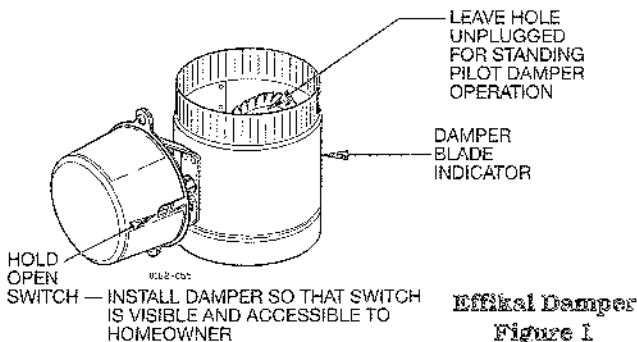
**WARNING** Only dampers listed on page 10 are approved for use on CG Series 12 SPD boilers. Any other damper installed can cause severe personal injury or death.

2. Minimum clearances:  
6" between damper and combustible material.  
36 1/4" 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.

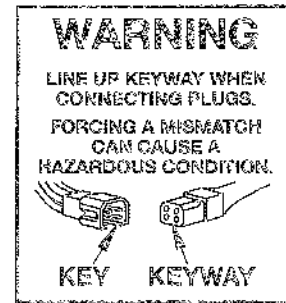
3. Install vent damper horizontally or vertically as shown in damper manufacturer's instructions. See Figures 1 or 2, and 3. Damper must be installed so that it serves only one boiler, and so damper blade indicator is visible to homeowner.

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.



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

**DANGER** Bypassing (jumpering) 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.

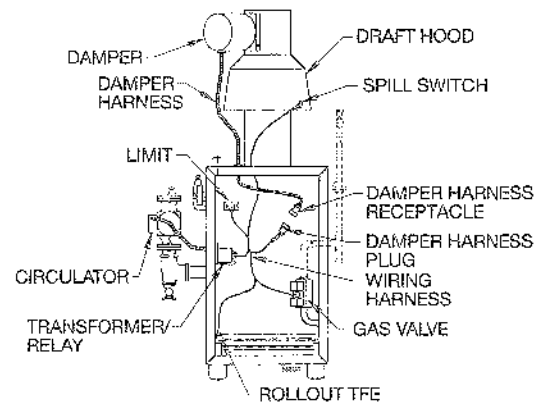


Figure 3



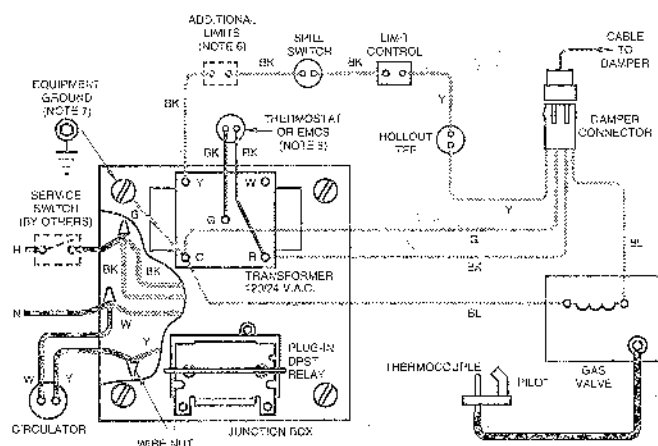
## Section B: Check-Out Procedure

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.

**WARNING** Damper must be fully open before main burners light. If damper does not fully open, flue products such as carbon monoxide will escape in to 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.

### SCHEMATIC WIRING DIAGRAM



### WARNING

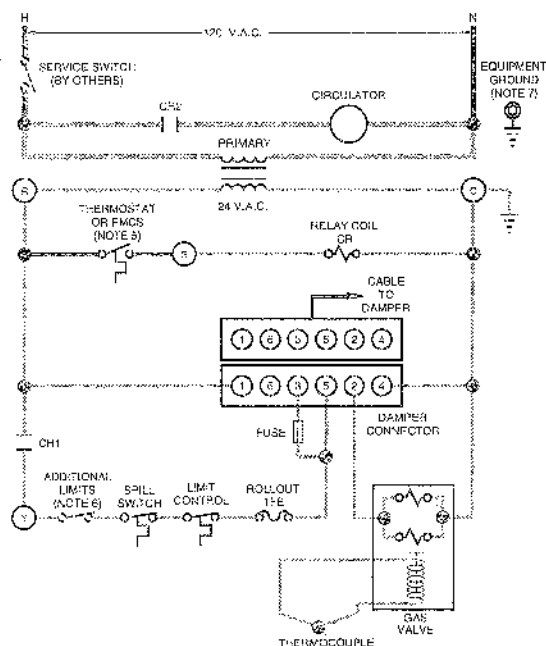
ELECTRICAL SHOCK HAZARD, CAN CAUSE SEVERE INJURY OR DEATH. DISCONNECT POWER BEFORE INSTALLING AND/OR SERVICING.

#### 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.S.A. C22.1 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 TPE WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, TYPE 200 C WIRE OR ITS EQUIVALENT MUST BE USED. IF OTHER ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, TYPE 16/2 C WIRE'S EQUIVALENT MUST BE USED.
4. REFER TO CONTROL COMPONENT INSTRUCTIONS PACKED WITH BOILER FOR APPLICATION INFORMATION.
5. THERMOSTAT - FOR SINGLE ZONE SYSTEMS, THERMOSTAT ANTICIPATOR SETTING IS 0.45 AMPS. FOR MULTIZONE SYSTEMS USING ZONE VALVES OR CIRCUITORS REFER TO COMPONENT MANUFACTURER'S INSTRUCTIONS FOR APPLICATION WIRING AND THERMOSTAT ANTICIPATOR SETTING.
 

EMCS - FOR EMCS CONNECTION IN PLACE OF THERMOSTAT, REFER TO EMCS INSTALLATION/OPERATING MANUAL.
6. L-V.C.O., ADDITIONAL HIGH LIMIT, ETC., WIRE IN SERIES.
7.  $\frac{0}{0}$  DENOTES FIELD INSTALLED CHASSIS GROUND.

### LADDER WIRING DIAGRAM



LOW VOLTAGE FIELD  
HIGH VOLTAGE FIELD  
LOW VOLTAGE FACTORY  
HIGH VOLTAGE FACTORY  
THERMOCOUPLE

**CG**

25 thru 8

- Standing Pilot
- Natural Gas
- Forced Hot Water



**WELL-McLAIN**

A United Dominion Company

Well-McLain • 500 Baine St. • Michigan City, IN 46360-2088

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.

#### WARNING

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.

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

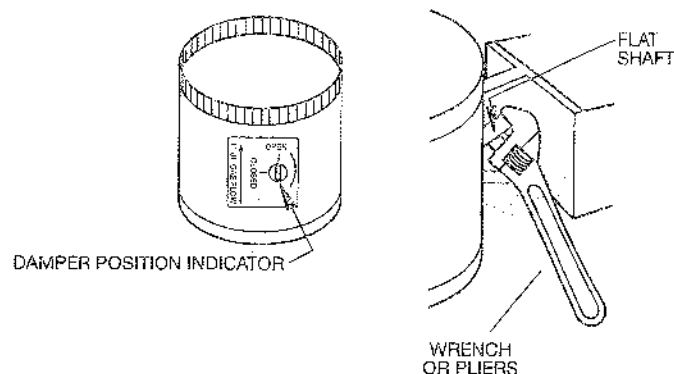


Figure 4

#### —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.

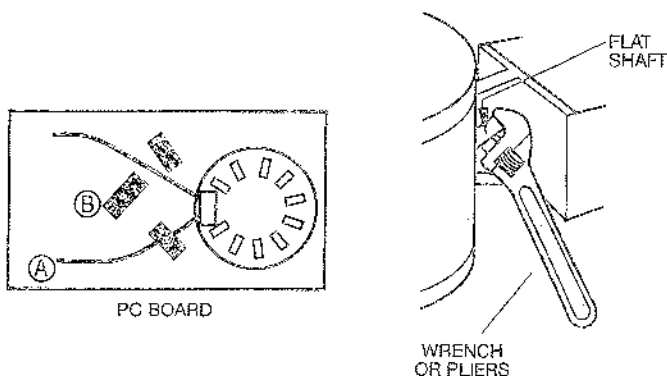


Figure 5

#### 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

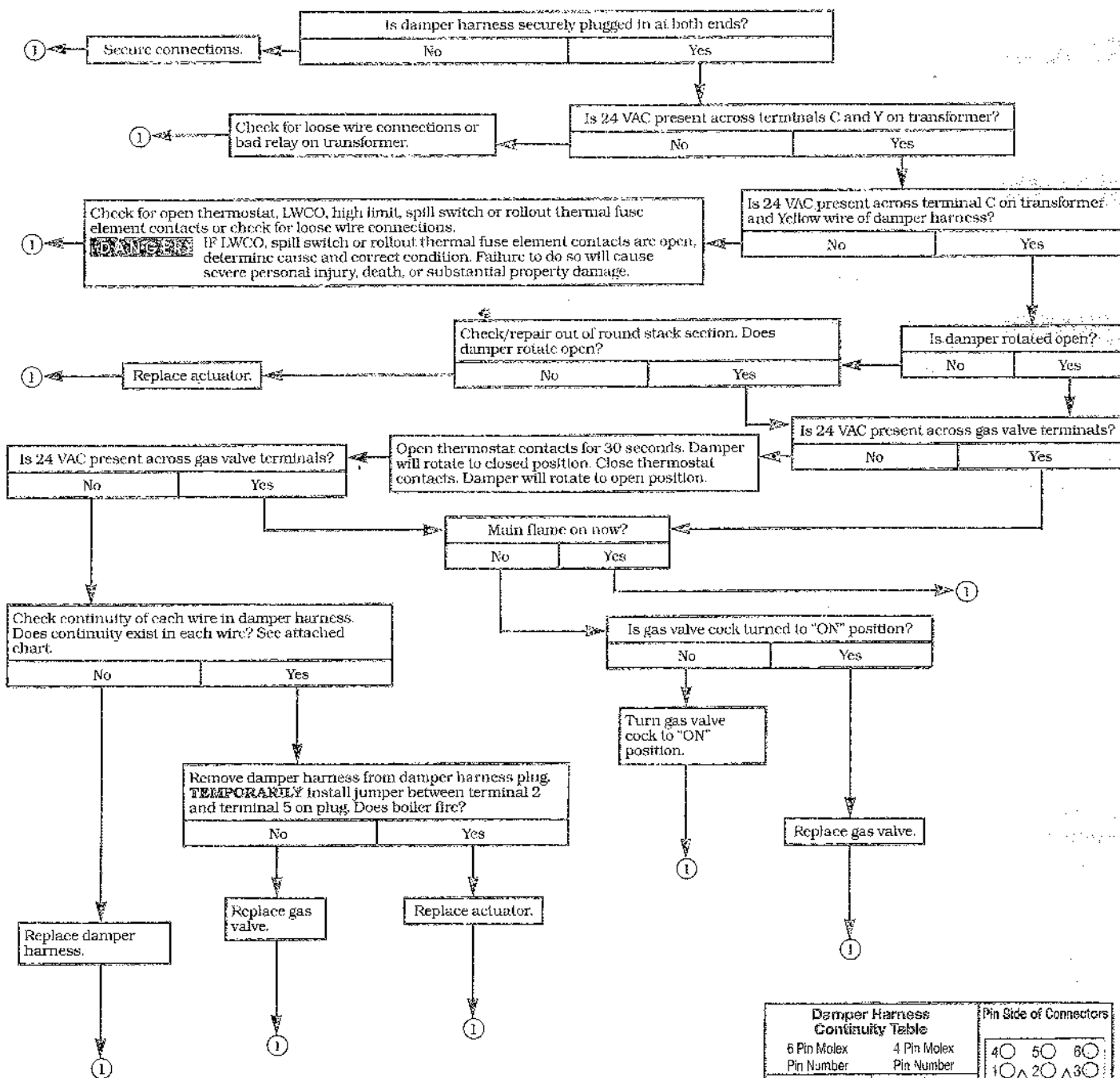
#### —EFFIKAL DAMPER

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.



## BOILER WILL NOT FIRE



Damper Harness Continuity Table		Pin Side of Connectors	
6 Pin Molex Pin Number	4 Pin Molex Pin Number	4 Pin Molex	3 Pin
1	1	4	5
2	3	1	2
3	4	3	1
4	N/C	4	3
5	2	2	1
6	N/C	1	3







# NATURAL GAS WITH HONEYWELL VR8200/VR8300 GAS VALVE

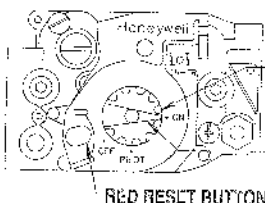
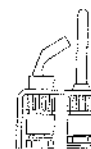
## FOR YOUR SAFETY READ BEFORE LIGHTING

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

- This appliance has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.
  - If you cannot reach your gas supplier, call the fire department.
- 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.
- 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

- STOP!** Read the safety information above on this label.
- Set the thermostat to lowest setting.
- When equipped with Effikal vent damper Model RVGP, place service switch in "HOLD DAMPER OPEN" position. See Control Supplement for additional information.
- Turn off all electric power to the appliance.
- 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.
- Turn gas control knob clockwise  to "OFF."
- When equipped with vent damper, verify damper blade is in full open position. See Control Supplement for additional information.
- Remove access panel located above burners.
- Find pilot -- follow metal tube from gas control. The pilot is between two burners behind the access panel.
- Turn gas control knob counterclockwise  to "PILOT."
- 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.
- Release reset button. Pilot should remain lit. If pilot goes out, repeat steps 6 through 13.
  - 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.
- Replace access panel.
- Turn gas control knob counterclockwise  to "ON."
- Turn on all electric power to the appliance.
- When equipped with Effikal vent damper, place service switch in "AUTOMATIC OPERATION" position.
- Set thermostat to desired setting.
- Replace front panel.
- 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.




GAS CONTROL KNOB

POSITION INDICATOR SHOWN IN "ON" POSITION

RED RESET BUTTON

## TO TURN OFF GAS TO APPLIANCE

- Set the thermostat to lowest setting.
- Turn off all electric power to the appliance if service is to be performed.
- Turn gas control knob clockwise  to "OFF."
- Replace front panel.

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# PROPANE GAS WITH HONEYWELL VR8200/VR8300 GAS VALVE

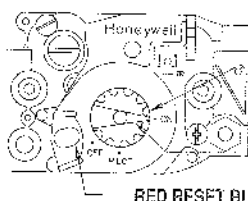
## FOR YOUR SAFETY READ BEFORE LIGHTING

**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.
  - 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.
- 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.

## 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.
13. Release reset button. Pilot should remain lit. If pilot goes out, repeat steps 6 through 13.
  - 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.



GAS CONTROL KNOB

POSITION INDICATOR SHOWN IN "ON" POSITION

RED RESET BUTTON

## 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.

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## Section D: Parts

Part Description	Vendor Part Number	W-M Part No.	W-M Sales Reference No.
Damper assembly			
4" (CG-25 and 3)	Effikal RVGP-KS-4BKF Johnson Q35GB-2 consisting of M35BC actuator and Y15 vent pipe	381-800-474	10C461
5" (CG-4)	Effikal RVGP-KS-5BKF Johnson Q35GD-2 consisting of M35BC actuator and Y15 vent pipe	381-800-475	10C462
6" (CG-5 and 6)	Effikal RVGP-KS-6BKF Johnson Q35GF-2 consisting of M35BC actuator and Y15 vent pipe	381-800-476	10C463
7" (CG-7 and 8)	Effikal RVGP-KS-7BKF Johnson Q35GH-2 consisting of M35BC actuator and Y15 vent pipe	381-800-477	10C464
Damper actuator	Effikal RVGP (Effikal Only) Johnson M35BE-1C (Johnson only)	510-512-337 510-312-255	10C465 10C056
Damper harness	Weil-McLain	591-391-795	10C321
Boiler wiring harness	Weil-McLain	591-391-862	10C631
Pilot replacement kit for natural gas	Weil-McLain	510-811-644	10C474
Pilot replacement kit for propane gas	Weil-McLain	510-811-646	10C475
Gas Valve 1/2" x 1/2" Sizes 25 thru 6 Natural Gas	Honeywell VR8200A2116 Robertshaw 7200ER 7AO-A1B-042	511-044-360	10C124
Gas Valve 3/4" x 3/4" 1.2 step Sizes 7-8 Natural Gas	Honeywell VR8300C4050	511-044-256	10C140
Gas Valve 1/2" x 1/2" 1.4 step Sizes 25 thru 6 Propane Gas	Honeywell VR8200A2280	511-044-258	10C468
Gas Valve 3/4" x 3/4" 1.4 step Sizes 7-8 Propane Gas	Honeywell VR8300C4068	511-044-257	10C469
Pilot Regulator Kit Sizes 25 and 3 only	Weil-McLain	510-811-648	10C471



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.