A. System Start Up

1. Verify that the pump system is operating properly.
   a. Shut off the manual gas valve.
   b. Set the wall thermostat to a setting high enough to call for heat.
   c. The pump should come on immediately. If it doesn’t, have a service technician test the electrical circuits.

2. Light the pilot.
   a. The JVS and JVH boilers do not require manual lighting. The pilot is controlled by the automatic ignition system.
   b. Different models of the JV boiler utilize various gas valves. Although the gas valves may have different control knobs, they are all similar in operation. The JVS gas valve has a two-position knob - On and Off.
Important: When lighting or relighting, wait the full 5 minutes specified in the lighting instructions. Unburned gases can accumulate in the fire box and may flash back. Allow ample time for natural air movement to clear the gases from the chamber before lighting or relighting.

Relighting - All Models:
1. Turn off electrical power to the boiler.
2. Turn the gas valve knob (clockwise for JVS) to Off.
3. Wait five minutes.
4. Turn the gas valve knob (counterclockwise for JVS) to On.
5. Restore power to the boiler, and set the thermostat to the desired temperature. The pilot will automatically ignite when there is a call for heat.

Circulator Pump:
In normal operation, the pump is energized by the wall thermostat via the pump relay supplied with the boiler.

Caution: Hazard of electrical shock!
Disconnect power to the boiler before servicing the relay or transformer.

B. System Shut Down
Turn off all gas valves and the electrical disconnect switch. Whenever danger of freezing exists, shut off the water supply, remove the drain plugs in the left side of the heater and open the drain valve on the right side. Drain every part of the system which might be subject to freezing temperatures.

Should overheating occur or the gas supply fail to shut off, do not turn off or disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the appliance.

To Shut Down Boiler:
(JVS and JVH) Automatic Ignition Systems:
1. Turn off power to the boiler and set the thermostat to the lowest setting.
2. Turn the gas valve knob (clockwise for JVS) or switch to the Off position.

C. Maintenance
1. Lubricate the water circulating pump according to the instructions found on the pump.
2. If a strainer is employed in a pressure reducing valve or in the piping, clean it every six months.
3. At start-up and periodically thereafter, the flame should be observed for proper performance. If the flame has “sooting” tips, check for debris near the orifices. If this continues, call a service technician.
4. For JVS models, ensure proper operation of the mechanical damper, mounted in the flue collar, by observing the damper handle. Be sure the handle swings when the draft inducer starts. Depending on the boiler size, the swing may be as little as 30°. Remove any obstructions and clean around the pivot rod (handle) holes.
5. Inspect the venting system for obstructions, leakage and corrosion at least once each year.
6. Keep the boiler area clear and free from combustible material, gasoline and other flammable vapors and liquids.
7. Be certain all combustion air and ventilation openings are unobstructed.
8. Check for fouling on the external surfaces of the heat exchanger every six months. Fouling on the external surfaces of the heat exchanger is caused by incomplete combustion and is a sign of combustion air and/or venting...
problems. As soon as any fouling is observed, the cause of the fouling should be corrected. The heat exchanger can be checked using a flashlight by locating a mirror under the burners. An alternate method is to remove the venting and top panel as necessary to inspect from above. Also, check the vent system for defects at this time.

If cleaning is required:

a. Shut off all power to the boiler.

b. Expose the heat exchanger by removing the draft hood (when equipped), and venting, top assembly, flue collector, and heat exchanger baffles.

c. Remove the burners by lifting them off the orifices and pulling them out of the boiler. For JVH models, pull out the burner tray after removing the attaching screws.

d. Use a hand-operated spray bottle filled with water and a wire brush to clean any soot and loose scale from the underside of the heat exchanger. Do not use compressed air, high pressure water or a garden hose.

e. Clean any fallen debris from the bottom of the unit.

f. Check to make sure that the burner ports and pilot assembly are free of debris before returning the burners to their original positions.

g. Reassemble the boiler in reverse order, making sure to replace the heat exchanger baffles.

9. The gas and electric controls installed on the boiler are engineered for both dependable operation and long life, but the safety of this equipment completely depends on their proper functioning. For this reason, it is strongly recommended that the basic items be checked by a competent service technician every year and replaced when necessary.

10. The blocked vent safety switch (JVS model only) is used to shut the boiler down in the case of insufficient draft due to venting system problems. Before resetting the blocked vent safety switch see the Appendix in Section 8D of the Installation and Operating Instructions (Document number 1254) to ensure that all possible causes have been investigated and corrected. If the problem continues and the boiler cannot be restored to normal operation call a qualified service agency.

11. The flame rollout safety switch provides additional safety, and will shut down the boiler should the flame from the main burners rollout (flashback) towards the main gas valve. Before resetting the flame rollout switch, see Section 8D of the Installation and Operating Instructions, (Document H2355800- for the JVS model) to ensure that all possible causes have been investigated and corrected. If the problem continues and the boiler cannot be restored to normal operation call a qualified service agency. Never attempt to bypass the flame roll-out safety switch for the purpose of operating the boiler. Do not use this boiler if any part has been under water. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any gas control which has been under water.

12. Check all heat exchanger water connections, flange or header gaskets for water tight integrity 24 hours after commissioning. If there are any signs of water leakage, re-torque fasteners or re-seat threaded connections as necessary.

NOTE: The warranty does not cover any damage caused by lack of required maintenance or improper operating practices.

**Table:**

<table>
<thead>
<tr>
<th>Period</th>
<th>24 hours</th>
<th>30 days</th>
<th>7 days</th>
<th>90 days+</th>
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</thead>
<tbody>
<tr>
<td>Then once every six months thereafter.</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**Figure 4 - Pilot Arrangements**

1) JVS pilot
2) JVH pilot
3) Main burner flame pattern

**The basic controls are:**

a. Water temperature controls
b. Pilot safety system
c. Automatic electric gas valve(s)
d. Inducer/blower assembly (JVH)
e. Fan proving pressure switch (JVH)
f. Flue or vent damper
D. **Air Shutter Adjustment (when required)**

1. STOP! Read the safety information on the last page.
2. Perform a System Start-Up in accordance with Section A of this manual.
3. Remove the burner cover by loosening the two thumbscrews.
4. Observe the flame pattern on all burners. If the flame on any burner is pulsing, unstable or lifting continue with this procedure. Otherwise skip to step 10.
5. On all burners exhibiting an abnormal flame, loosen but do not remove the air shutter locking screw using a 5/16 inch wrench. (See Fig. 5 below.)
6. On each affected burner, slowly close the air shutter until a normal flame is observed, then re-tighten its associated locking screw.
7. Turn the boiler off.
8. Perform a System Start-Up in accordance with Section A of this manual.
9. Observe the flame pattern on all burners. If the flame on any burner is pulsing, unstable or lifting, repeat steps 5 and 6 until all burners are exhibiting a normal flame.
10. Re-install the burner cover and tighten it in place.

---

**Table 1 - Gas Control Valves**

<table>
<thead>
<tr>
<th>Model</th>
<th>Size</th>
<th>Suffix*</th>
<th>Type of Gas</th>
<th>Part No.</th>
<th>Valve Mfr. No.</th>
<th>Manufacturer</th>
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<td>50-75</td>
<td>D</td>
<td>NAT</td>
<td>V0077400</td>
<td>VR8304H</td>
<td>HONEYWELL</td>
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<tr>
<td>JVS</td>
<td>100-225</td>
<td>K</td>
<td>NAT</td>
<td>V0079000</td>
<td>VR8304H</td>
<td>HONEYWELL</td>
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<tr>
<td>JVS</td>
<td>50-75</td>
<td>D</td>
<td>LP</td>
<td>V0077500</td>
<td>VR8304H</td>
<td>HONEYWELL</td>
</tr>
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<td>100-225</td>
<td>K</td>
<td>LP</td>
<td>V0079100</td>
<td>VR8304H</td>
<td>HONEYWELL</td>
</tr>
<tr>
<td>JVH</td>
<td>50-160</td>
<td>C</td>
<td>NAT</td>
<td>V2001800</td>
<td>SV9501H</td>
<td>HONEYWELL</td>
</tr>
<tr>
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<td>225</td>
<td>C</td>
<td>NAT</td>
<td>V2001900</td>
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<td>V2002300</td>
<td>SV9501H</td>
<td>HONEYWELL</td>
</tr>
</tbody>
</table>

*Suffix Definitions

- **C** = On/Off Firing
- **D** = On/Off Firing
- **K** = Two-Stage Firing

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**Note:** The warranty does not cover any damage caused by lack of required maintenance or improper operating procedures.