

5. MAINTENANCE

WARNING

Do not store or allow combustible or flammable materials near the boiler. Substantial fire or explosion hazard could result, causing risk of personal injury, death or property damage.

Do not use this boiler if any part of it has been under water. Immediately call a qualified service technician to inspect the boiler. Any part of the control system, any gas control or any burner or gas component which has been under water must be replaced.

Should overheating occur or the fuel supply fail to shut off: Shut off the fuel supply at a location external to the boiler. Do not turn off or disconnect the electrical supply to the pump. Immediately call a qualified service technician to inspect the boiler for damage and defective components.

1. Placing Boiler in Operation:
 - a) Start up the Burner/Boiler per the Burner Manual and the instructions in this manual on starting the boiler.
 - b) Prove the correct operation of all controls on the boiler and burner as outlined below.
 - c) Check the operation of the ignition and flame proving controls as described in the Burner Manual.
 - d) Test the limit and operating controls to assure they are operating correctly.
 - e) Inspect and test all low water cutoffs.
 - f) Test the safety relief valve(s) using the procedure given by the valve manufacturer on the valve tag.
 - g) Visually inspect the burner and pilot flames (if applicable).
2. To Shut Down the Boiler:
 - a) Turn off Burner.
 - b) Open main line power disconnect switch to boiler/burner.
 - c) Close fuel shut-off valves.
 - d) To take boiler out of service if the boiler and system are not to be used when temperatures are below freezing:
 - i. Shut off make-up water supply and drain the boiler and system completely.
 - ii. Open main line power disconnect switch to boiler/burner. Remove the fuses or secure the switch so that the power cannot be turned on accidentally.
 - iii. Do not use ethylene glycol antifreeze in a boiler system.

- iv. Be certain that the boiler and system are refilled before returning to service. Follow the instructions in this manual and the burner instructions to operate.

CAUTION

Before servicing the boiler:

- Turn off all electrical power to the boiler.
- Close the Gas Service Valve and Oil Shut-Off Valve.
- Allow the boiler to cool if it has been operating.
- Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

3. Maintenance – Annual:
 - a) **Before the start of each heating season**, inspect and make all necessary adjustments to insure proper boiler and burner operation. Use the maintenance and inspection procedures following.
 - b) Inspect the Venting System:
 - i. Check the chimney or vent to make sure it is clean and free from cracks or potential leaks.
 - ii. All joints must be tight and sealed.
 - iii. The vent connector must extend into, but not beyond the inside edge of the chimney or vent.
 - c) Inspect the Boiler Area:
 - i. The boiler area must be clean and free from combustible materials, gasoline or any other flammable liquids or vapors.
 - ii. The combustion air openings and the area around the boiler must be unobstructed.
 - d) Inspect boiler flueways and burner for cleanliness. If cleaning is required, use the following procedure.
 - i. Turn off all electrical power to the boiler.
 - ii. Remove left jacket panels. Remove cleanout cover plates on each flueway. Remove flue rods.
 - iii. Brush the boiler flue areas through cleanout openings.
 - iv. Remove the burner and burner mounting plate. Remove any scale or soot from the combustion chamber by means of vacuum cleaning or other available means.
 - v. Reinstall the burner mounting plate, burner, flue rods (refer to Figure 2.9 for correct order) and all cleanout cover plates. Make sure all sealing rope and seals are in good condition. Replace sealing rope if necessary.
 - vi. Reinstall all jacket panels.

- e) Inspect the boiler and piping for signs of leaks. Check to see if there are signs of heavy make-up water addition to the system.
 - f) When placing boiler into operation, follow burner manual, all instructions supplied with the boiler and the instructions in this chapter.
 - g) Test the operation of all limit controls, float controls and ignition components.
4. Monthly Maintenance
- a) Inspect the burner and pilot flames.
 - b) Inspect the boiler and system for any signs of leakage or excessive make-up water usage.
 - c) Inspect and check the operation of the venting system.
5. Daily Maintenance
- a) Inspect the boiler area to make sure the area is free from combustible or flammable materials and that there are not obstructions to the flow of air to the boiler or combustion air openings to the room.
 - b) Make sure there are no signs of abnormal operation, such as overfilling or leakage.

 **CAUTION**

Be very careful when adding water to a hot boiler. Add very slowly or, if possible, allow the boiler to cool naturally before adding water.

 **NOTICE**

If an excessive loss of water occurs, check for a leak in the piping and correct the problem. Excessive make-up water will cause corrosion and damage to the boiler.

 **NOTICE**

STEAM BOILERS: Do not place cold boilers in service on a hot steam line or severe damage may occur to boiler and piping. Keep cold boilers valved off line, fire until boiler reaches line pressure and then open steam main isolation valve. Steam entering a cold boiler cools quickly causing severe steam hammer. Boilers not valved off the system should have an overflow installed to prevent idle boilers from flooding. If this is not done, cold boilers must be heated to near steaming conditions (210°F) before the water level is dropped to normal.

WATER BOILERS: Avoid thermal shock of water boilers. Establish water circulation through the boiler before starting burner. Where hot standby is required, special piping and operation procedures are required. Consult your PB Heat, LLC representative.