

10. MAINTENANCE

WARNING

Product Safety Information Refractory Ceramic Fiber Product

This appliance contains materials made from refractory ceramic fibers (RCF). Airborne RCF, when inhaled, have been classified by the International Agency for Research on Cancer (IARC), as a possible carcinogen to humans. After the RCF materials have been exposed to temperatures above 1800°F (982°C), they can change into crystalline silica, which has been classified by the IARC as carcinogenic to humans. If particles become airborne during service or repair, inhalation of these particles may be hazardous to your health.

Avoid Breathing Fiber Particulates and Dust

Suppliers of RCF recommend the following precautions be taken when handling these materials:

Precautionary Measures:

Provide adequate ventilation.

Wear a NIOSH/MSHA approved respirator.

Wear long sleeved, loose fitting clothing and gloves to prevent skin contact.

Wear eye goggles.

Minimize airborne dust prior to handling and removal by water misting the material and avoiding unnecessary disturbance of materials.

Wash work clothes separately from others. Rinse washer thoroughly after use.

Discard RCF materials by sealing in an airtight plastic bag.

First Aid Procedures:

Inhalation: If breathing difficulty or irritation occurs, move to a location with fresh clean air.

Seek immediate medical attention if symptoms persist.

Skin Contact: Wash affected area gently with a mild soap and warm water. Seek immediate medical attention if irritation persists.

Eye Contact: Flush eyes with water for 15 minutes while holding eyelids apart. Do not rub eyes. Seek immediate medical attention if irritation persists.

Ingestion: Drink 1 to 2 glasses of water. Do not induce vomiting. Seek immediate medical attention.

⚠ 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.

A. PLACING BOILER IN OPERATION

1. Start up the Burner/Boiler per the Burner Manual and the instructions in this manual on starting the boiler.
2. Prove the correct operation of all controls on the boiler and burner as outlined below.
3. Check the operation of the ignition and flame proving controls as described in the Burner Manual.
4. Test the limit and operating controls to assure they are operating correctly.
5. Inspect and test all low water cutoffs.
6. Test the safety relief valve(s) using the procedure given by the valve manufacturer on the valve tag.
7. Visually inspect the burner and pilot flames (if applicable).

B. TO SHUT DOWN THE BOILER

1. Turn off Burner.
2. Open main line power disconnect switch to boiler/burner.
3. Close fuel shut-off valves.
4. To take boiler out of service if the boiler and system are not to be used when temperatures are below freezing:
 - a) Drain the boiler and system completely and shut off make-up water supply.
 - b) 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.

- c) Be certain that the boiler and system are refilled before returning to service. Follow the Instructions in this manual and the Lighting Instructions to operate.
- d) The system may be filled with a 50% inhibited propylene glycol solution for protection down to -35°F. Use only antifreeze solutions specifically designed for hydronic use.

⚠ 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.

C. MAINTENANCE – ANNUAL

1. **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.
2. Inspect the Venting System
 - a) Check the chimney or vent to make sure it is clean and free from cracks or potential leaks.
 - b) All joints must be tight and sealed.
 - c) The vent connector must extend into, but not beyond the inside edge of the chimney or vent.
3. Inspect the Boiler Area
 - a) The boiler area must be clean and free from combustible materials, gasoline or any other flammable liquids or vapors.
 - b) The combustion air openings and the area around the boiler must be unobstructed.
4. Inspect boiler flueways and burner for cleanliness. If cleaning is required, use the following procedure.
 - a) Turn off all electrical power to the boiler.
 - b) Remove Jacket Middle Front Panel and Jacket Top Panels. Remove Front Cleanout Plate and Cleanout Cover Plates on each flueway. On LCE boilers, remove the top flue outlet plate and vent piping as necessary to access the top of the sections.
 - c) Brush the boiler tube spaces both horizontally (through cleanout openings on ends) and vertically (from top of boiler through cleanout openings at flueways).

- d) 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. Take care not to damage the chamber floor liner or target wall liner.
 - e) Replace the Front Cleanout Plate, Burner Mounting Plate, Burner and all Cleanout Cover Plates on top of the sections. Make sure all sealing rope and seals are in good condition. Replace sealing rope if necessary.
 - f) Replace all Jacket Panels.
5. 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.
 6. When placing boiler into operation, follow Burner Manual, all instructions supplied with the boiler and the instructions in this chapter.
 7. Test the operation of all limit controls, float controls and ignition components as described in Part A, "Placing Boiler in Operation", of this chapter.

D. MONTHLY MAINTENANCE

1. Inspect the burner and pilot flames as for the annual inspection.
2. Inspect the boiler and system for any signs of leakage or excessive make-up water usage.
3. Inspect and check the operation of the venting system.

E. DAILY MAINTENANCE

1. 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.
2. 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.

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.