

## 6. 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, 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.

## A. GENERAL

1. Check pipes adjacent to cold walls or in unheated spaces. Insulate and tape them if necessary to be sure they can't freeze up. Keeping the water moving at all times will reduce the likelihood of freezing.
2. If there is considerable foreign matter in the boiler water, the boiler should be shut down and allowed to cool, then drained and thoroughly flushed out. Drain the boiler at the drain cock. Pipe the drain cock to a suitable drain or containment device (if antifreeze is used). Flush the system to remove remaining matter. If there is evidence that hard scale has formed on the internal surfaces, the boiler should be cleaned by chemical means as prescribed by a qualified water treatment specialist.
3. There must be no signs of continuous wetness at the chimney. If signs of continuous wetness are observed, a qualified service agency must be consulted to modify the vent configuration to prevent the formation of condensate, which may damage the vent pipe.

**WARNING** Do not use this appliance if any part has been under water. Improper or dangerous operation may result. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any control which has been under water.

## B. DAILY MAINTENANCE (WITH BOILER OPERATING)

Daily boiler observation can be performed by the owner. If any potential problems are found, a qualified installer or service technician/agency must be notified.

1. Remove any combustible materials, gasoline and other flammable liquids and substances that generate flammable vapors from the area where the boiler is contained. Make certain that the boiler area has ample air for combustion and ventilation and that there are no obstructions to the free flow of air to and from the boiler.
2. Observe general boiler conditions (unusual noises, vibrations, etc.).
3. Observe operating temperature and/or pressure gauge on the boiler. Boiler pressure should never be higher than 5 psi below the rating shown on the safety relief valve. The valve rating can be found on the top of the safety relief valve. Boiler temperature should never be higher than 250°F.
4. Check for water leaks in boiler and system piping.

## C. WEEKLY MAINTENANCE (WITH BOILER OPERATING)

1. Flush float-type low-water cut-off (if used) to remove sediment from the float bowl as stated in the manufacturer's instructions.

## D. MAINTENANCE OF SAFETY RELIEF VALVE

1. Check function and maintain safety relief valve as specified by manufacturer, typically every other month or every month, per the instructions on the tag on the safety relief valve.

## E. MONTHLY MAINTENANCE (WITH BOILER OPERATING)

1. Check boiler room floor drains for proper functioning.
2. Test probe type low-water cut-off (if used) by using the Push-to-Test Button.

**CAUTION** Turn off power to boiler before adjusting limit control.

3. Test limit by lowering the limit set point until the burner shuts down. When proper operation is confirmed, return the set point to original setting.
4. Follow additional instructions in the Burner Manual for proving the burner component operation.

## F. MAINTENANCE – ANNUAL

**NOTICE** Entire heating system, including boiler, burner and venting system, must be inspected at least once a year by a qualified heating professional. Boiler is to be cleaned at least once a year.

**WARNING** Disconnect all power to the burner before accessing combustion chamber.

TO CLEAN:

1. Remove top jacket panel and flue collector, Item 9.
2. To thoroughly clean the boiler it must be brushed down from the top and/or left side. Alternatively, for limited space or minimum clearance to combustible installations, cleaning the heat exchanger from the combustion chamber side is acceptable. If unit is extremely dirty, it may be necessary to brush from all directions. The target wall is made of a soft ceramic fiber. Care must be taken not to damage this material during cleaning.

3. Remove any scale or soot from the combustion chamber area by vacuum cleaning or any other available means.

**NOTICE** Burner mounting plate must be opened to facilitate this operation.

4. Replace flue collector and close burner mounting plate, making sure all gaskets are in place.
5. Replace jacket top panel.

**NOTICE** All cover plates, enclosures, and guards must be maintained in place at all times, except during maintenance and servicing.

6. Inspect venting system.

**G. IF A LONG SHUTDOWN IS REQUIRED**

1. 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. Remove the fuses or secure the switch so that the power cannot be turned on accidentally.

**CAUTION** Always keep the manual fuel supply valve shut off if the burner is shut down for an extended period of time.

2. Be certain that the boiler and system are refilled before returning to service.