

# OIL-BURNING EQUIPMENT: STEAM AND HOT-WATER BOILERS

P/N# 240006274L Rev. 1.0 [11/06]

## HOMEOWNER AND OPERATOR INSTRUCTIONS

### **IMPORTANT**

- **READ AND SAVE THESE INSTRUCTIONS FOR REFERENCE.**
- **USE ONLY NUMBER 2 FUEL OIL.**

### **CAUTION**

- **DO NOT USE GASOLINE, CRANKCASE DRAININGS, OR ANY OIL CONTAINING GASOLINE.**
- **NEVER BURN GARBAGE OR PAPER IN THE UNIT, AND NEVER LEAVE COMBUSTIBLE MATERIAL AROUND IT.**

### **WARNING**

- **KEEP YOUR BOILER AND THE SPACE AROUND THE APPLIANCE CLEAR OF DEBRIS. DO NOT STACK ITEMS ON OR AROUND THE APPLIANCE WITHIN THE REQUIRED CLEARANCES TO COMBUSTIBLES.**
- **ENSURE THAT THE SUPPLY OF COMBUSTION AIR TO THE APPLIANCE IS NOT OBSTRUCTED OR CUT OFF. ENSURE THAT THE PROPER VENTILATION TO THE APPLIANCE AREA IS MAINTAINED.**



## INSTRUCTIONS TO OBTAIN PROPER OPERATION OF THE BOILER

### CAUTION

- **DO NOT SET FIRE VISUALLY.**
- **DO NOT START THE BURNER UNLESS ALL CLEAN-OUT DOORS ARE SECURED IN PLACE.**
- **DO NOT ATTEMPT TO START THE BURNER WHEN EXCESS OIL HAS ACCUMULATED, WHEN THE UNIT IS FULL OF VAPOR, OR WHEN THE COMBUSTION CHAMBER IS VERY HOT.**

Instruments are the only reliable method to determine proper air adjustments. An improperly adjusted burner causes soot and high fuel bills because of incomplete combustion of the fuel oil. This in turn may require excessive boiler maintenance, service costs, and in some instances, house cleaning or redecorating. A competent service mechanic should be consulted to make the proper adjustments with a smoke tester, CO<sub>2</sub> indicator and draft gauge. Bacharach or Dwyer test kits include these instruments.

A ¼" diameter slot is provided in the inspection cover plate to take draft readings in the combustion chamber. A ¼" diameter hole will be required in the flue pipe between the boiler and barometric damper (if used) to take draft, CO<sub>2</sub>, smoke and temperature readings. Adjust air shutter on oil burner to obtain a "trace" of smoke. Measure CO<sub>2</sub> at this point. Increase air adjustment to lower CO<sub>2</sub> approximately one (1) percent. Check to ensure zero (0) smoke and correct draft is obtained for the unit installed (reference the Boiler Installation Manual for correct draft settings). If the proper draft can not be maintained, changes and/or modifications may be required in the venting or the chimney.

## SHUTTING DOWN THE BOILER FOR EXTENDED PERIODS OF TIME

### CAUTION

***ALWAYS KEEP THE OIL SUPPLY VALVE SHUT OFF IF THE BURNER IS SHUT DOWN FOR AN EXTENDED PERIOD OF TIME.***

- Always turn off electrical power to the boiler via the field installed fused disconnect switch if the boiler is shut down for an extended period of time.
- When restarting the boiler from an extended shutdown, follow the Operating Instructions in the Installation Manual and Operating Instructions.

## GENERAL MAINTENANCE DURING OPERATION

The following preventative maintenance should be performed by a qualified service technician annually prior to the heating season.

Preventative maintenance of an oil fired boiler reduces operating costs. The boiler and vent pipe should be inspected for accumulation of soot or scale deposits periodically but at least once every year before the start of each heating season. When soot is present on the section walls and flue ways, improper combustion will result, causing additional sooting and scaling until flue ways are completely closed.

Periodic inspection and tightening of the tank-less heater/cover plate bolts, if applicable, will reduce the risk of leaks.

### WARNING

***ALWAYS DISCONNECT POWER TO THE BOILER WITH THE EMERGENCY POWER ISOLATION SWITCH WHEN SERVICING THE BOILER. THE EMERGENCY POWER ISOLATION SWITCH IS FIELD INSTALLED AND SHOULD BE WITHIN 5 FEET OF THE BOILER.***

## OIL BURNER MAINTENANCE

1. **Oil Burner Motor** – Add two-three drops of non-detergent electric motor oil to each oil cup located at the front and rear of the motor. Excessive oiling will shorten the life expectancy of the motor.
2. **Fuel Filter** – This should be replaced so as to prevent contaminated fuel from reaching the nozzle. A partially blocked fuel filter can cause premature failure of the fuel pump unit.
3. **Fuel Pump Unit** – Replace pump screen and clean pump unit to maintain reliable fuel delivery to the nozzle.
4. **Ignition Electrodes** – Clean and adjust as per manufacturer's recommendations, so as to maintain reliable ignition of the oil.
5. **Nozzle** – Replace annually as to maintain safe and reliable combustion efficiency.
6. **Fan and Blower Housing** – These must be kept clean, free of dirt, lint and oil so as to maintain the proper amount of air the fuel requires to burn.

## BOILER CLEANING INSTRUCTIONS

1. Shut off all electrical power to the boiler/burner and shut off fuel supply
2. Remove the sheet metal smoke pipe from the tip of the boiler. Inspect vent pipe and/or chimney for signs of corrosion and deterioration. Clean base of chimney or vent pipe. Remove top jacket panel.
4. Remove the flue collector top.
5. Inspect the gasket on the underside of the flue collector and replace as necessary.
6. Remove the burner. Service the burner per burner manufacturer's instructions.
7. Inspect the combustion chamber and fire door insulation for cracking and deterioration. If there are any signs of cracking or deterioration, replace before reassembling the boiler.
8. Remove soot from fireside surfaces by brushing diagonally

## OIL BURNER MAINTENANCE

through the flue passages. Care should be taken so as not to damage the combustion chamber with the flue brush.

9. Use caution when vacuuming in the chamber area. Damage to chamber could result.
10. Reinstall the burner.
11. Reinstall the flue collector.
12. Reinstall the top jacket panel. Reconnect the flue pipe.
13. Reconnect the electrical and fuel supplies.
14. Fire the burner, checking for proper combustion using combustion test equipment, making adjustments as necessary.
15. Ensure that all safety controls and operating controls are functioning properly.

## INSTRUCTIONS FOR BLOW DOWN OF A STEAM BOILER

Before blowing down the boiler, fill it to the water line. Turn in burner and allow five pounds of steam pressure to build up. Run a temporary connection from one of the drain valves to a nearby sewer. Connect to a drain valve on the opposite end of the boiler from the feed water inlet, if possible. Shut off the oil burner, open drain valve and blow down the entire contents of boiler.



***WATER WILL BE BOILING HOT.***

Allow boiler to thoroughly cool and slowly refill to water line. Repeat as many times as required until blow off water is clear. Owner should blow down boiler at least once each month of the heating season.

Contact a qualified service technician before remodeling, for annual service/maintenance, before extended periods of shutdown, and before start-up.

# HOMEOWNER AND OPERATOR INSTRUCTIONS

## CAUTION

***DO NOT TAMPER WITH THE UNIT OR CONTROLS  
– CALL YOUR QUALIFIED SERVICE TECHNICIAN.***

### **Service Personnel Information**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

***Lennox  
Product Literature  
Lennox Industries Inc.  
Dallas, Texas***