Homeowner Instructions

OIL-BURNING EQUIPMENT
STEAM AND HOT-WATER BOILERS

WARNING

Fire, explosion, asphyxiation and electrical shock hazard. Improper maintenance and service could result in death or serious injury. Read this manual and understand all requirements, including use of qualified agency where directed.

⚠ WARNING

Maintenance and Service must be completed by qualified agency.

Modification, substitution or elimination of factory equipped, supplied or specified components may result in personal injury or loss of life.

TO THE OWNER - Installation and service of this boiler must be performed by a qualified installer.

TO THE INSTALLER - Leave all instructions with boiler for future reference.

NOTICE

1. READ AND SAVE THESE INSTRUCTIONS FOR REFERENCE.
2. USE ONLY #2 FUEL OIL.
3. DO NOT USE GASOLINE, CRANKCASE DRAININGS, OR ANY OIL CONTAINING GASOLINE.
4. NEVER BURN GARBAGE OR PAPER IN THE UNIT, AND NEVER LEAVE COMBUSTIBLE MATERIAL AROUND THE BOILER. DO NOT STACK ITEMS ON OR AROUND THE APPLIANCE WITHIN THE REQUIRED CLEARANCE TO COMBUSTIBLES.
5. ENSURE THE SUPPLY OF COMBUSTION AIR TO THE APPLIANCE IS NOT OBSTRUCTED OR CUT OFF. ENSURE THE PROPER VENTILATION TO THE APPLIANCE AREA IS MAINTAINED.
6. DO NOT TAMPER WITH UNIT OR CONTROLS CALL YOUR SERVICE AGENT.

Lennox
Product Literature
Lennox Industries Inc.
Dallas, Texas

P/N 240011517, Rev. A [5/31/2016]

⚠WARNING

- Do not set combustion visually.
- Do not start burner unless all clean-out doors are secured in place.
- Do not attempt to start burner when excess oil has accumulated, when unit is full of vapor, or when combustion chamber is very hot.

Boiler Start-Up Information

- Have a qualified service technician perform the startup procedures. Refer to boiler Installation, Operation & Maintenance Manual for full details.
- Instruments are the only reliable method to determine proper combustion adjustments. An improperly adjusted burner causes soot and high fuel bills due to incomplete combustion of fuel oil. This may require excessive boiler maintenance, service costs, and in some instances, house cleaning or redecorating.
- A test port is provided in burner swing door or burner mounting plate to take draft readings in combustion chamber.
- A ¼" diameter hole is required in the flue pipe between boiler and barometric damper (if used) to take draft, CO_2, smoke and temperature readings.
- Confirm correct nozzle installed and correct pump pressure set for intended firing rate according to information provided in boiler installation manual and parts manual.
- Adjust air shutter on oil burner to obtain "trace" of smoke. Measure CO_2 at this point. Increase air adjustment to lower CO_2 by one-half (1/2) percent to one (1) percent.
- Verify zero (0) smoke and correct draft is obtained for installed unit. Reference boiler Installation, Operation & Maintenance Manual for correct draft settings. If proper draft can not be maintained, changes and/or modifications may be required in venting or chimney.

Shutting Down The Boiler for Extended Periods of Time

NOTICE

Keep oil supply valve shut Off if burner is shut down for extended period of time.

- Turn off electrical power to boiler using field installed fused disconnect switch if boiler is shut down for extended period.
- When restarting boiler from extended shut-down, follow Operating Instructions in the Installation, Operation & Maintenance Manual.
- Contact qualified service technician before remodeling, for annual service/maintenance, before extended periods of shutdown, and before startup.

General Maintenance During Operation

- Have a qualified service technician perform preventive maintenance prior to heating season.
- Preventive maintenance of oil fired boiler reduces operating costs.
- Boiler and vent pipe should be inspected for accumulation of soot or scale deposits periodically but a least once every year before start of the heating season. When soot is present on the section walls of the flue ways, improper combustion will result, causing additional sooting and scaling until flue ways are completely closed.
- Periodic inspection and tightening of the tankless heater / cover plate bolts, if applicable, will reduce risk of leaks.
- Boiler installer should have provided an emergency power isolation switch located within 5 feet of the boiler.

⚠WARNING

Electrical shock hazard. Disconnect power to boiler with emergency power isolation switch when servicing boiler. Failure to do so could result in death or serious injury.

Oil Burner Maintenance

Have a qualified service technician perform oil burner maintenance.

1. Oil Burner Motor - Modern oil burner motors are permanently lubricated. Do not attempt to oil the motor.
2. Fuel Filter - Replace to prevent contaminated fuel from reaching nozzle. A partially blocked fuel filter can lead to premature failure of the fuel pump.
3. Fuel Pump - Replace pump screen and clean pump to maintain reliable fuel delivery to nozzle.
4. Ignition Electrodes - Clean and adjust per manufacturer's recommendations, to maintain reliable ignition of the oil.
5. Nozzle - Replace annually to maintain safe and reliable combustion efficiency.
6. Fan and Blower Housing - Keep clean, and free of dirt, lint and oil to maintain proper air fuel requires to burn.

Boiler Cleaning Instructions

1. Have a qualified service technician perform cleaning.
2. Shut off all electrical power to boiler/burner and shut off fuel supply.
3. Remove sheet metal smoke pipe from top of 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 flue collector top.
5. Inspect gasket on underside of flue collector and replace as necessary.

6. Remove the burner. Service burner per burner manufacturer's instructions.
7. Inspect the combustion chamber and fire door insulation for cracking and deterioration. If there are signs of cracking or deterioration, replace before reassembling the boiler.
8. Remove soot from fire side surfaces by brushing diagonally 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 burner.
11. Reinstall flue collector.
12. Reinstall top jacket panel. Reconnect flue pipe.
13. Reconnect the electrical and fuel supplies.
14. Fire the burner. Check for proper combustion using combustion test equipment, make adjustments as necessary.
15. Verify all safety controls and operating controls are functioning properly.

SKIMMING AND BLOWDOWN OF STEAM BOILERS

⚠WARNING

Burn and scald hazard. Following service procedure shall be performed by a qualified service agent only. Failure to follow these instructions could result in death or serious injury.

⚠WARNING

Burn and scald hazard. Boiler water temperatures are in excess of 125°F (52° C). Failure to follow these instructions could result in death or serious injury.

It is imperative to clean a steam boiler after it has been installed and put into continuous operation.

This is done to remove accumulations of oil, grease, sludge, etc. in the system. These substances may cause boiler water to foam and/or surge, producing an unsteady water line, throwing water into the steam header, and possibly preventing steam generation. Skimming removes threading oil and other impurities that float on the surface of the water. Blowdown removes deposits that have settled on boiler bottom.

1. Remove plug from skim tapping and pipe to floor drain or bucket.
2. Raise water level to skim tapping.
3. Fire burner to maintain water temperature of 180-200°F. Do not allow boiler to steam.
4. Feed water to boiler at a trickle, just enough to maintain continuous water flow from the skim tapping.
5. Continue skimming until water runs clear. This may take several hours.
6. Shut off burner. Drain boiler completely. Close skim tapping.
7. Fill boiler to water line.
   a. Fire burner. Allow normal steam pressure to build up.
   b. Run connection from boiler drain valve to safe discharge point.
   c. Shut off burner. Open drain valve. Allow all water in boiler to drain out.
   d. Close drain valve. Allow boiler to cool.
   e. Slowly refill boiler to water line.
   f. Repeat this step as many times as necessary until blowdown water is clear.
8. After blowdown, allow boiler to cool.
9. Add fresh water slowly to normal water line.
10. Fire burner
11. Maintain at least 180°F (82°C) for 15 minutes to remove dissolved gases from fresh water.
12. Shut off burner.
13. Allow system to operate for a week to give system dirt a chance to work its way back to boiler.
    a. Check water in gauge glass. Gauge glass should be dry above water line.
    b. Water line should not bounce more than one inch when boiler is steaming.
    c. If water droplets carry over from top of gauge glass, or excessive bouncing of water line, boiler needs further cleaning.
    d. Take water sample and boil it on a stove to see if it foams. If it does, this indicates boiler needs to be cleaned again.

If further cleaning is necessary, repeat skimming and blowdown procedure. A long skim should be all that is needed to clean the boiler.

In more troublesome cases it may be desirable to flush the system while in very extreme cases, it may be necessary to chemically clean and flush the heating system.

Consult boiler manufacturer before introducing any chemical into the boiler.

Check water level frequently. Be sure top and bottom valves on gauge glass are always open so actual water level is shown at all times.

NOTICE

Clean water with no additives is essential to proper operation of your boiler and heating system. Boiler cleaners and chemical cleaning, if used and not rinsed properly, may be harmful to the system.

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

Date of Installation: _____

Boiler Model #: _____

Installed By:

Name _____

Address _____

Telephone _____

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