International Comfort Products

OWB & OWT

Oil-Fired Water Boilers

User's Information Manual

Hazard definitions

DANGER Hazards that **will cause severe** personal injury, death or substantial property damage.

WARNING Hazards that **can cause severe** personal injury, death or substantial property damage.

CAUTION Hazards that **will or can cause minor** personal injury or property damage.

NOTICE Special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

The User's Information Manual provides information to the boiler owner/user for routine operation and maintenance and emergency shutdown. Detailed information on boiler installation, operation, start-up, service and parts is included in the Boiler Manual. The Boiler Manual is intended **only for use by a qualified installer/ service technician**.

WARNING INSTALLER — Please take time to review this User's Information Manual with the boiler owner. Explain all maintenance and service procedures.

WARNING **Failure to adhere to the guidelines on this page can result in severe personal injury, death or substantial property damage.**

WARNING At the beginning of each heating season, contact your qualified service technician to inspect, clean and start-up the boiler per the Boiler Manual. Failure to comply could result in boiler failure, leading to potential severe personal injury, death or substantial property damage.

Service and maintenance

1. To avoid electric shock, disconnect electrical supply before performing maintenance.
2. To avoid severe burns, allow boiler to cool before performing maintenance.
3. You must maintain the boiler as outlined in the manual and have the boiler started up and serviced at least annually by a qualified service technician to ensure boiler/system reliability.

Boiler operation

4. DO NOT block flow of combustion or ventilation air to boiler. If vent or air blockage is easily accessible and removable, remove it. If blockage is not obvious or cannot be removed, have the boiler and system checked by a qualified service technician.
5. Should overheating occur or oil supply fail to shut off, do not turn off or disconnect electrical supply to pump. Instead, shut off the oil supply at a location external to the appliance.
6. DO NOT use this boiler if any part has been under water. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any burner control that has been under water.
7. Have the building monitored when it is vacant for an extended period. Safety controls can shut down the boiler at any time. The loss of heat can result in significant damage due to freezing.

Air contamination

8. Carefully read and follow instructions on page 2.

Boiler water

9. DO NOT use petroleum-based cleaning or sealing compounds in boiler system. Water seal deterioration will occur, causing leakage between sections and damage to heating system components. This can result in substantial property damage.
10. DO NOT use "homemade cures" or "boiler patent medicines". Serious damage to boiler, personnel and/or property may result.
11. Continual fresh makeup water will reduce boiler life. Mineral buildup in sections reduces heat transfer, overheats cast iron, and causes section failure. Addition of oxygen and other gases can cause internal corrosion. Leaks in boiler or piping must be repaired at once to prevent makeup water.
12. DO NOT add cold water to hot boiler. Thermal shock can cause sections to crack.

Glycol — potential fire hazard —

13. All glycol is flammable when exposed to high temperatures. If glycol is allowed to accumulate in or around the boiler or any other potential ignition source, a fire can develop. In order to prevent potential severe personal injury, death or substantial property damage from fire and/or structural damage:

- Never store glycol of any kind near the boiler or any potential ignition source.
- Inspect the boiler and system regularly for leaks. Have any any leaks repaired immediately to prevent possible accumulation of glycol.
- Never use automotive antifreeze or ethylene glycol in the system. Using these glycols can lead to hazardous leakage of glycol in the boiler system.

Part Number 672 02 1005 00

Please read this page first

Air contamination

To prevent potential of severe personal injury or death, check for products or areas listed in table below before installing boiler. If any of these contaminants are found, do one of the following:

- Remove contaminants permanently. — *or* —
- Isolate boiler and provide outside combustion air. See applicable codes for further information. — *or* —
- Contact your qualified service technician to install an outside air kit (if available) for the burner. An outside air kit allows ducting of outside air directly to the burner.

Products to avoid
Spray cans containing chloro/fluorocarbons
Permanent wave solutions
Chlorinated waxes/cleaners
Chlorine-based swimming pool chemicals
Calcium chloride used for thawing
Sodium chloride used for water softening
Refrigerant leaks
Paint or varnish removers
Hydrochloric acid/muriatic acid
Cements and glues
Antistatic fabric softeners used in clothes dryers
Chlorine-type bleaches, detergents, and cleaning solvents found in household laundry rooms
Adhesives used to fasten building products and other similar products
Areas likely to have contaminants
Dry cleaning/laundry areas and establishments
Swimming pools
Metal fabrication plants
Beauty shops
Refrigeration repair shops
Photo processing plants
Auto body shops
Plastic manufacturing plants
Furniture refinishing areas and establishments
New building construction
Remodeling areas
Garages with workshops

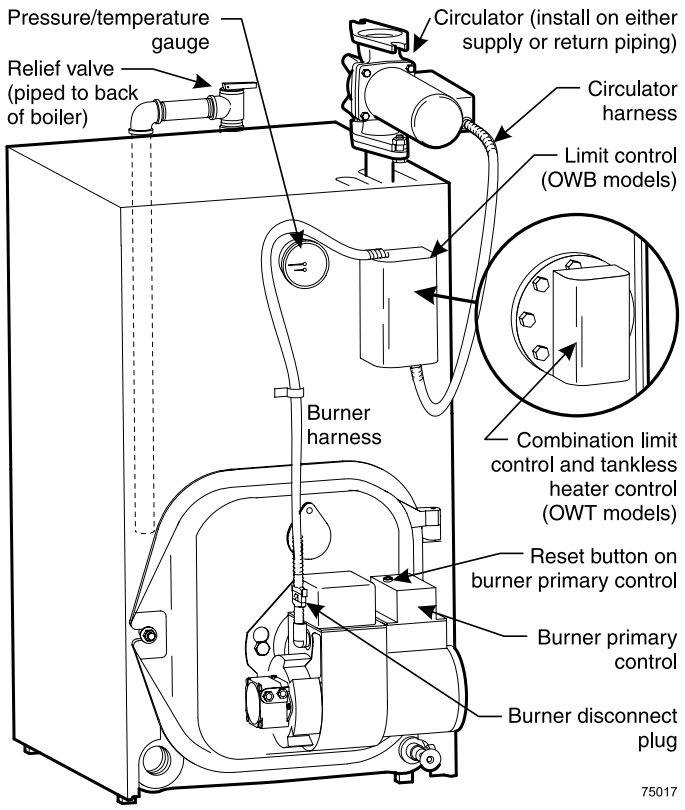
Start-up

1. If burner does not fire, check for:
   - Boiler switch turned off?
   - Fuses blown or breaker tripped?
   - Thermostat set below room temperature?
   - Fuel valves turned off?
   - Not enough oil in tank to supply burner?
2. Correct problems found in step #1. If burner does not fire, press the reset button on burner primary control only once. Repeated presses will deposit oil in chamber, creating a fire hazard.

DANGER Burner must never be fired when oil is in combustion chamber. Immediately call a qualified service technician.

3. If burner still does not fire, call a qualified service technician.

Figure 1 Boiler and components



❑ Check daily

Boiler area

1. Check that boiler area is free from combustible materials, gasoline and other flammable vapors and liquids. Ensure that no air-contaminating materials (see above) are present in the area.

Pressure/temperature gauge

1. Pressure gauge should not show more than 24 psig. Higher pressure may indicate a system problem. Contact a qualified service technician if high pressure occurs.

Air openings

1. Verify that combustion and ventilation air openings to the boiler room and/or building are open and unobstructed.

❑ Check monthly

Boiler and system piping

1. Visually inspect for leaks around piping, circulators, relief valve and other fittings. Check oil lines and boiler air for signs of oil leakage. Immediately call a qualified service technician to repair any leaks.

WARNING Have leaks fixed at once by a qualified service technician. Continual fresh makeup water will reduce boiler life. Minerals can build up in sections, reducing heat transfer, overheating cast iron, and causing section failure.

WARNING Do not use petroleum-based cleaning or sealing compounds in boiler system. Severe damage to boiler and system components can occur, resulting in possible severe personal injury, death or substantial property damage.

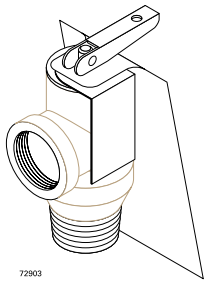
Venting system

1. Visually inspect all parts or the flue gas venting system for any signs of blockage, leakage or joints or deterioration of the piping. Notify your qualified service technician at once if you find any problem.

WARNING Failure to inspect the vent system as noted above and have it repaired by a qualified service technician can result in vent system failure, causing severe personal injury or death.

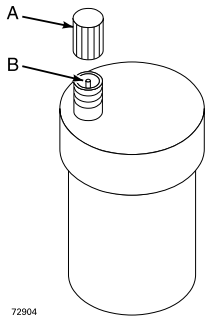
Boiler relief valve

1. Inspect the boiler relief valve and the relief valve discharge pipe for signs of weeping or leakage.
2. If the relief valve often weeps, the expansion tank may not be working properly.
   - Immediately contact your qualified service technician to inspect the boiler and system.



Automatic air vents (if used)

1. Remove the cap from any automatic air vent in the system and check operation by depressing valve **B** slightly with the tip of a screwdriver.
2. If the air vent valve appears to be working freely and not leaking, replace cap **A**, twisting all the way on. Loosen cap **A** one turn to allow vent to operate.
3. Have vent replaced if it does not operate correctly.



❑ Periodically

Test low water cut-off (if installed)

1. If the boiler or system is fitted with a low water cut-off device, test the device following the cut-off manufacturer's instructions.

❑ Periodically

Oil motors equipped with oil cups

1. Burner or circulator motors may require oiling. Such motors are fitted with oiling cups. Use a few drops only of S.A.E. 20 detergent oil. Do not use household oils. Excessive oiling can damage motors. Do not attempt to "fill up" the oiling cup.

❑ Every 6 months

Operate boiler relief valve every 6 months

WARNING To avoid water damage or scalding due to valve operation, a metal discharge line must be connected to relief valve outlet and run to a safe place of disposal. This discharge line must be installed by a qualified heating installer or service technician in accordance with the instructions in the Boiler Manual. The discharge line must be terminated so as to eliminate possibility of severe burns should the valve discharge.

1. Before proceeding, verify that the relief valve outlet has been piped to a safe place of discharge, avoiding any possibility of scalding from hot water.
2. Read the boiler pressure/temperature gauge to make sure the system is pressurized.
3. Lift the relief valve top lever slightly, allowing water to relieve through the valve and discharge piping.
4. If water flows freely, release the lever and allow the valve to seat. Watch the end of the relief valve discharge pipe to ensure that the valve does not weep after the line has had time to drain. If the valve weeps, lift the seat again to attempt to clean the valve seat. If the valve continues to weep afterwards, contact your qualified service technician to inspect the valve and system.
5. If water does not flow from the valve when you lift the lever completely, the valve or discharge line may be blocked. Immediately turn off switch to the boiler and close fuel valves. Call your qualified service technician to inspect the boiler and system.

❑ End of season shutdown

- Do not drain boiler unless exposure to freezing temperatures will occur.
- Always keep manual fuel supply shut off if burner is shut down for an extended period.
  a. Turn off switch to boiler.
  b. Close fuel valves.
  c. Turn off water feed valve.
  d. Cover burner to protect from dust and dampness.

❑ Troubleshooting

1. See page 4.

❑ Troubleshooting

Troubleshooting — Common problems and possible solutions		
Symptom	**Common Causes**	**Possible Corrections**
Rapid cycling — boiler turns on and off frequently	Thermostat installed where drafts or heat affect reading	Locate thermostat on inner wall away from heat sources or cool drafts.
	Heat anticipator in thermostat adjusted incorrectly	Adjust thermostat per manufacturer's instructions.
	Incorrect limit setting	Set limit according to system needs. Maximum setting is 220˚F. Increase limit setting to decrease cycling.
	Insufficient water flow through boiler	Check all valves to and from boiler. Return to proper setting.
		Confirm circulator size.
Frequent release of water through relief valve	Expansion tank sized too small	Call qualified service technician to check expansion tank operation and size.
	Flooded expansion tank	Call qualified service technician to check expansion tank operation.
	Inoperative limit control	Call qualified service technician to replace limit control.
Need to frequently add makeup water	Leaks in boiler or piping	Have qualified service technician repair leaks at once to avoid constant use of makeup water. Makeup water can cause mineral deposits which, in turn, can cause boiler section failure. Do not use petroleum-base stop-leak compounds.
Black water condition	Oxygen corrosion due to leaks in boiler and piping	Have qualified service technician repair at once. Keep pH of water between 7.0 to 8.5.
Popping or percolating noise heard in boiler	Mineral deposits in sections due to constant use of makeup water	Call qualified service technician to de-lime boiler, if necessary. In some cases, deposits will be too heavy to remove with de-liming procedures.
		Have qualified service technician repair leaks to eliminate need for constant makeup water.
	Incorrect pH of boiler water	Call qualified service technician to check pH level and correct. pH should be maintained between 7.0 to 8.5.
	Insufficient water flow through boiler	Check all valves to and from boiler. Return to proper setting.
		Confirm circulator size.
Metal flakes found in vent outlet or vent — flueway corrosion	Contaminated combustion air supply — See page 2 in this manual.	Remove any contaminating products. See page 2 in this manual.
		Provide outside air for combustion. Kit available through local distributor. Have qualified service technician pipe-up kit.
	Condensation of combustion gases in boiler sections	Have qualified service technician inspect system piping and controls to verify proper regulation of return water temperature.
Some radiators or baseboard units do not heat or are noisy	Air in system	Bleed air from system through air vents in radiators or baseboard units.
	Low system pressure	Fill to correct pressure.
		Check for leaks in boiler or piping. Have qualified service technician repair at once.
	High limit set too low	Adjust high limit to higher setting.
Domestic water from tankless heater is hot then suddenly turns cold. — or — Domestic water from tankless heater is always lukewarm.	Mineral deposits insulate internal waterways of heater	Have qualified service technician delime or replace coil.
	Boiler stop-leak compound has been added to boiler water and is insulating outside of coil	Have qualified service technician remove and clean coil **and** drain and flush boiler to remove stop-leak.
	Incorrect mixing valve setting for tankless heater	Have qualified service technician adjust mixing valve setting.
	Domestic flow rate too high	Have qualified service technician install flow check valve set to rating of tankless heater.
	Incorrect setting on tankless heater control	Have qualified service technician raise tankless control setting. Adjust differential on tankless control to lower setting.

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