

FOR YOUR SAFETY: This product must be installed and serviced by a professional service technician, qualified in hot water heater and boiler installation and maintenance. Improper installation and/or operation could create carbon monoxide gas in flue gases which could cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

⚠ WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a nearby phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency, or gas supplier.



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FOR YOUR SAFETY READ BEFORE OPERATING

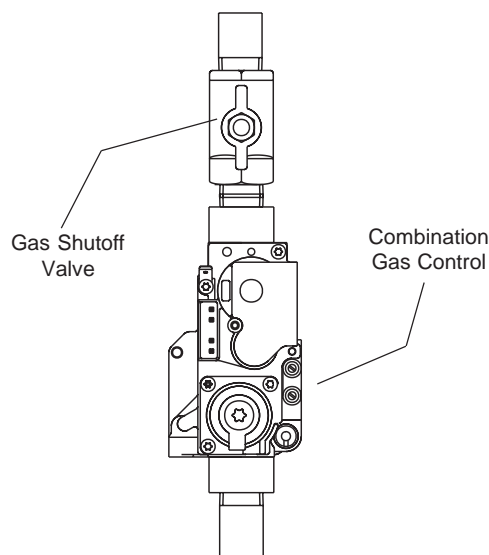
⚠ WARNING

If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.

- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
WHAT TO DO IF YOU SMELL GAS
 - Do not try to light any appliance.
 - Do not touch any electric switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- C. Turn on gas shutoff valve (located above the combination gas control) so that the handle is aligned with the gas pipe. If the handle will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.



4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. Remove control access panel, and top front cover.
6. Turn gas shutoff valve clockwise ↻ to "off". Handle will be horizontal, do not force (see Figures 2 and 3 for location).
7. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to next step.
8. Turn gas shutoff valve counterclockwise ↺ to "on". Handle will be vertical.
9. Replace top front cover and control access panel.
10. Turn on all electric power to appliance, depress on/off button on control panel, depress black button on top of control panel.
11. Set thermostat to desired setting.
12. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove control access panel and top front cover.
4. Turn gas shutoff valve clockwise ↻ to "off". Do not force.
5. Replace top front cover and control access panel.

SECTION 1.

Caring For Your Endurance

Your Endurance will require very little maintenance. However, as with any fine appliance, there are certain steps you should take to insure continuing optimum performance.

1A. General Care

Keep your Endurance area clear and free from combustible materials, gasoline and other flammable vapors and liquids.

If you desire, clean the jacket surfaces with a damp cloth and mild soap. Do not use flammable cleaning materials.

Keep vent terminal free of obstructions. Do not pile snow against vent terminal.

1B. Annual Inspection of Flues and Vents

You should visually inspect the vent pipe once a year. Should any corrosion exist, have the affected parts replaced.

On horizontally vented units installed with p/n 2400-326/328 (Direct Vent Kit) inspect the metal vent terminal (see Figure 3) on the outside of the building for corrosion. Replace if necessary.

On all models installed without the Direct Vent Kit, clean and inspect the condensate collection and disposal system which is a part of the flue assembly.

1C. Shutting Down the Endurance

The need may arise to shut down your Endurance (extended stay away from home, for example). If so, the following steps are required:

1. Switch off main disconnect switch (located on back of control panel).
2. Close gas shutoff valve above combination gas control valve (inside unit).
3. Close main manual gas valve.
4. If freezing is anticipated, drain Endurance and be sure to protect building piping from freezing, also.

The above steps may require qualified service personnel.

1D. To Restart Endurance

Should the need arise (power interruption, for example), you may have to restart your Endurance. Follow these steps:

1. Momentarily depress reset button on top of control panel.
2. Turn up thermostat to call for heat.
3. In approximately 2 seconds, the blower will operate and ignition should occur after 35-40 seconds. It may take as long as 2½ minutes.
4. If ignition does not occur, wait 5 minutes and then repeat steps 1 through 3.

5. If, after three attempts, you still are unable to achieve ignition, shut down the boiler and call your service technician.

If drained, follow these steps:

1. Follow "Installation Manual" for proper filling and purging.
2. Turn on main manual gas valve.
3. Remove control access panel and top front cover and turn on gas shutoff valve, above combination gas control valve.
4. Switch on main disconnect switch, depress on/off button on front of control panel, and depress black reset button on top of control panel (pump and blower will start and igniter will be energized, after 35 seconds the gas valve will be energized, and ignition will occur). If ignition does not occur within 2½ minutes switch "off" main disconnect switch, wait 5 minutes and switch "on" again. If after three attempts ignition does not occur, initiate shutdown procedure and call for service.

1E. In the Event of Power Failure

The Endurance cannot be operated during an electrical power outage. If there is an extended power outage with danger of freezing, then the Endurance (and all other water systems) should be completely drained. When draining the unit, turn off gas and turn off the main power switch. When replacing in service, refer to start-up instruction for proper filling and purging.

1F. Full Service Every 3 Years

In addition to the annual visual inspections by the homeowner, a qualified service agency should conduct a detailed inspection of all flue product carrying areas of the boiler and vent system. This should be done in accordance with the service instruction in the "Installation and Operating Instructions Manual" for the Endurance.

Caution

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 gas control which has been under water.

WARNING

Should overheating occur or the gas supply fails to shut off, do not turn off or disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the Endurance.

FOR SERVICE

Contact your installing contractor, gas utility, Laars dealer or call Laars for the nearest authorized representative in your area.

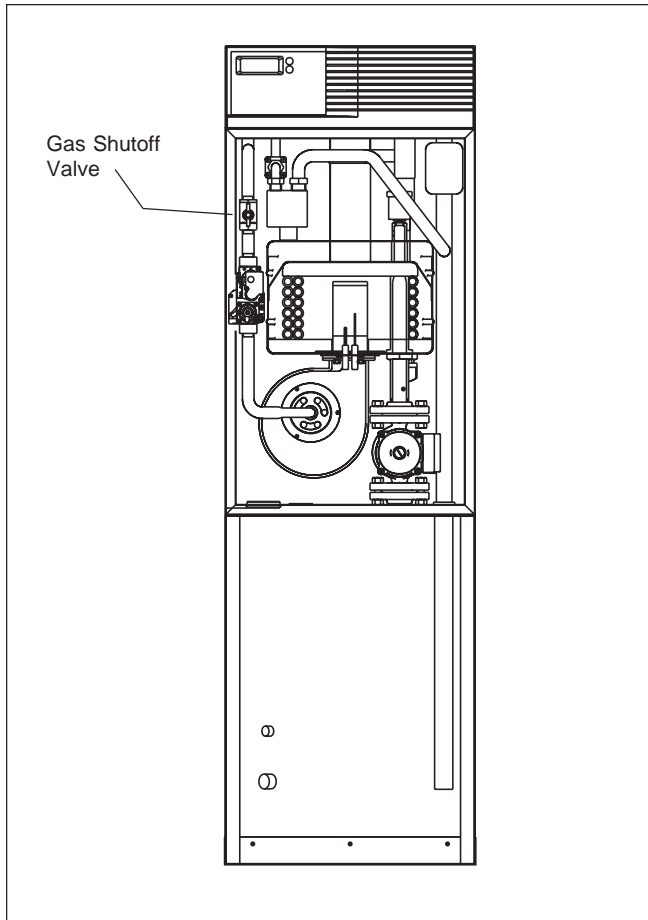


Figure 1. EBP Assembly View.

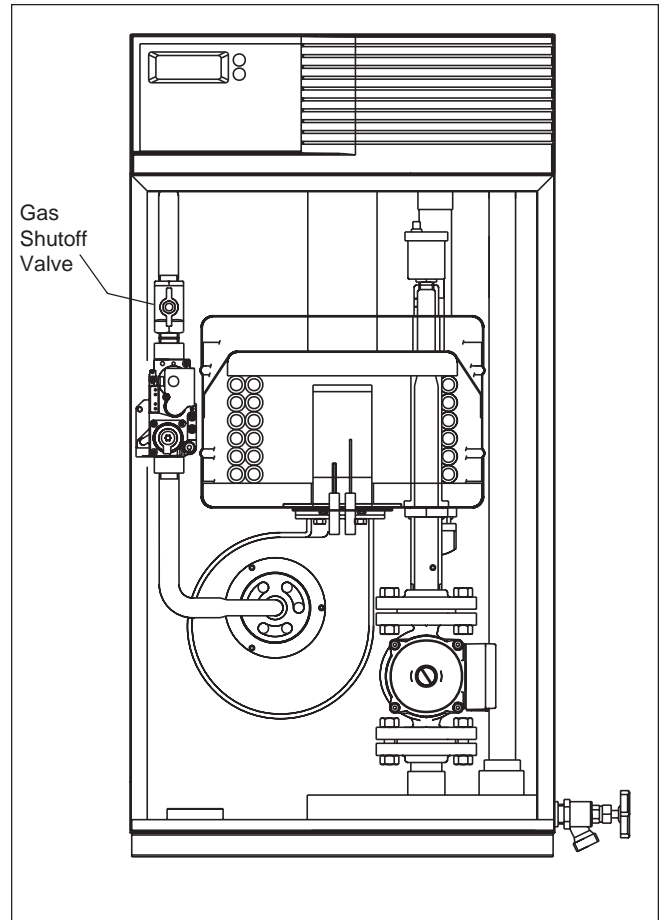


Figure 2. EDP/EDN Assembly View.

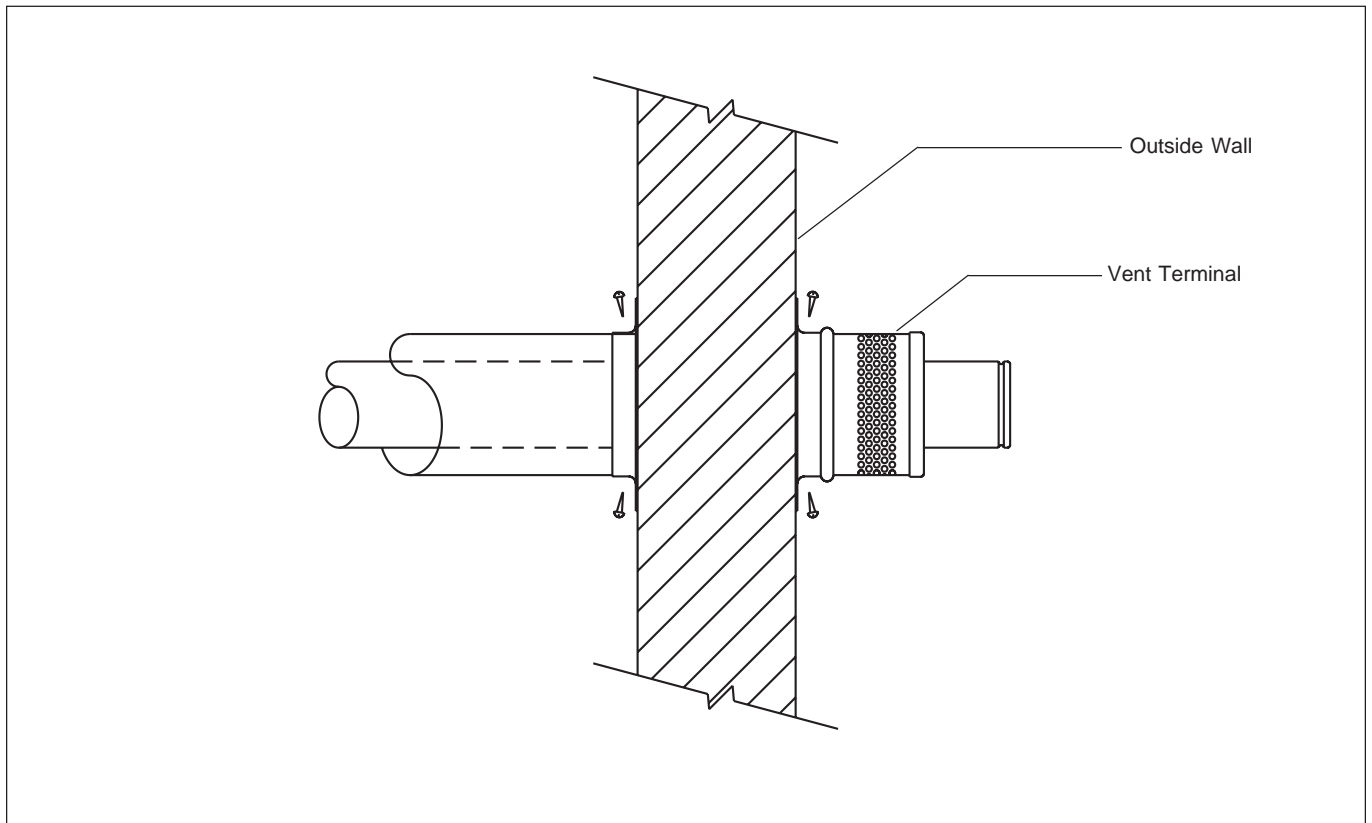


Figure 3. Vent Terminal.

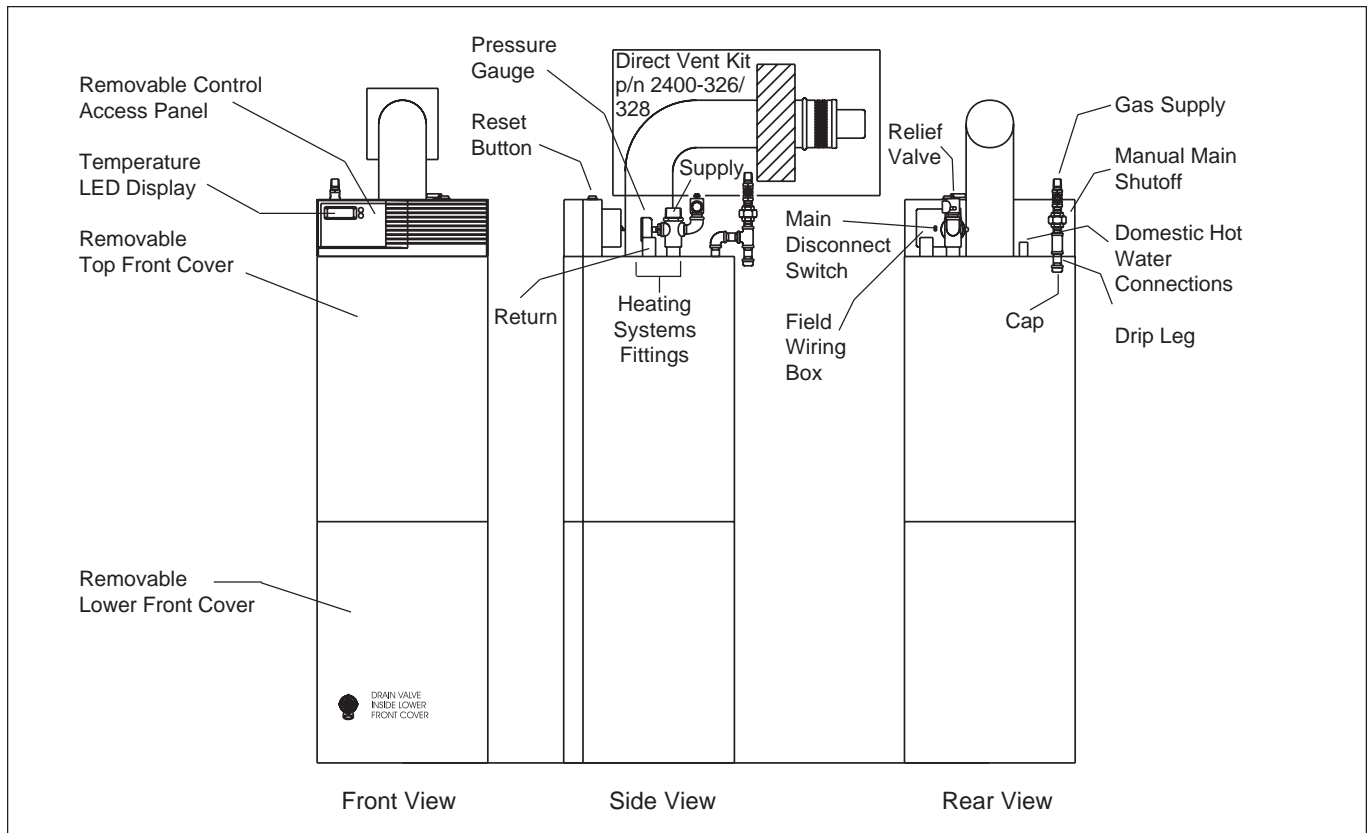


Figure 4. EBP Series.

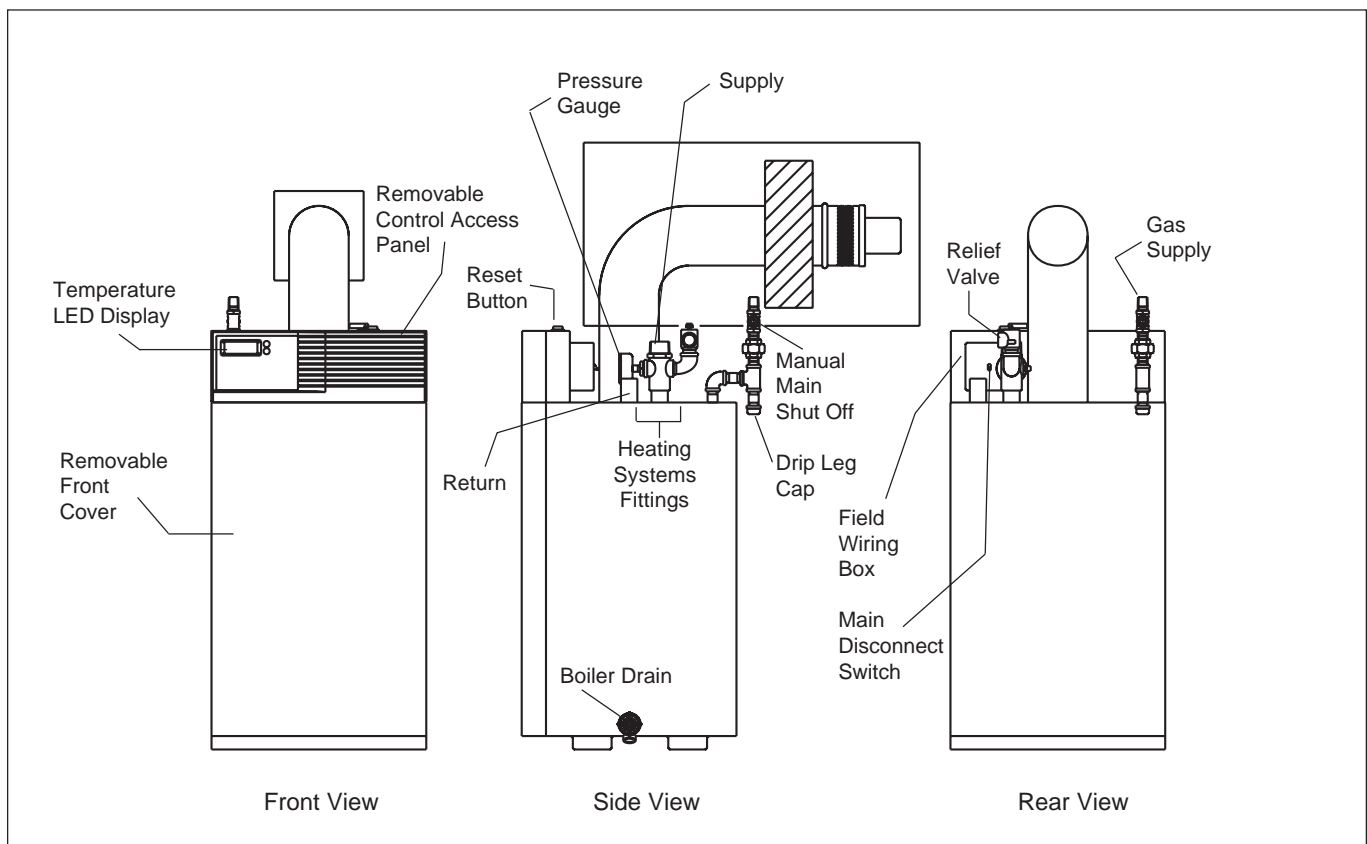


Figure 5. EDP/EDN Series.

Message	Identifies	To read or change mode
<i>bft</i>	Boiler Flow Temp (Supply)	During operation display will default to supply temperature. Press temperatures button repetitively. To sequence through three temperature indicators.
<i>tnt</i>	Tank Temp	
<i>rtt</i>	Return Temp (Boiler Inlet)	
<i>on</i>	On	Boiler in standby mode: will operate on call for domestic water or heat zone demand.
<i>OFF</i>	Off	Boiler switched OFF. Press ON/OFF button for "ON".
<i>LO</i>	Lock Out	After three trials for ignition, will stand in lockout. Press reset on top of panel to retry.
<i>FL3</i>	Third Failure (Failure Level)	To monitor, press and hold temperature button for five seconds. Display will indicate first of eight fault memories (FL1). Then display one of six fault conditions that occurred previous. Display will sequence through the eight memories (see Section 1G for fault codes).
<i>F-3</i>	Fault Code (Three), there are 8 different Fault Codes, defined in Section 1G of this manual.	
<i>ICE</i>	Freeze Protection	Sensor has detected return temperature below 39°F (4°C).

Figure 6. LED Display Code Identification.

1G. Trouble Shooting - Fault Codes

The Endurance boiler is controlled by a Pactrol integrated boiler control (PCB) which provides eight fault codes with eight memories. To obtain fault messages press-in on the message center fault button until the first fault code (FL1) is displayed. The last recorded fault will appear e.g. F-4 (flow thermistor faulty - open or shorted). The control will then sequence through all eight memories, indicating alternately the fault number and the fault code (FL1, F-?; FL2, F=?; ..., FL8, F=?).

Fault Code Identification

The following eight fault codes may be observed:

- F- Error corrected, control in auto reset time period (10 seconds)
- F-0 No fault has occurred
- F-1 Error occurred reading fault logic of main control
- F-2 Over heat thermostat has operated (open circuit)
- F-3 Fan fault
- F-4 Flow thermistor faulty (open or short circuited)
- F-5 Tank thermistor faulty (open or short circuited) (Combi unit only)
- F-6 Return thermistor faulty (open or short circuited)

