

# USER MANUAL



## HOT WATER HEATING BOILERS Domestic Water Heaters 150,000 - 300,000 Btu/hr MODELS



LOW LEAD CONTENT

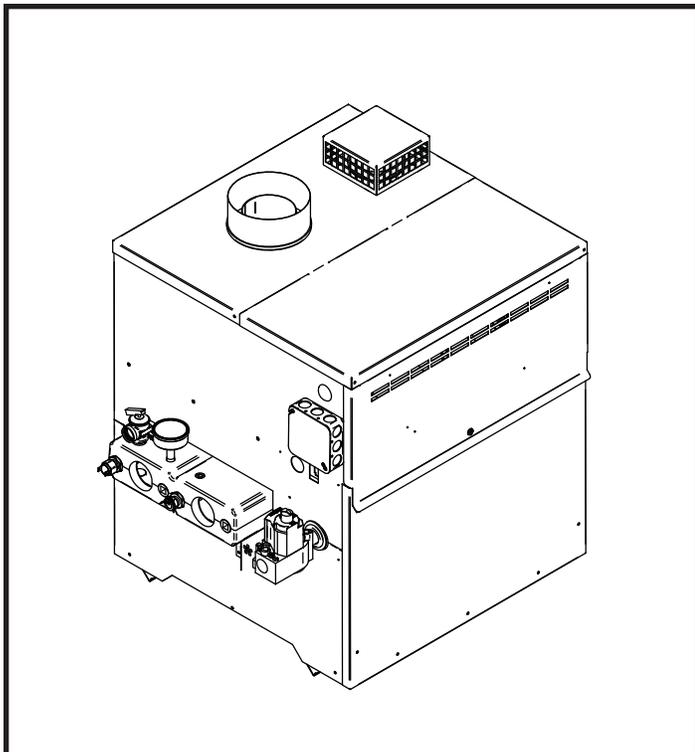


FIG. 1 Front View

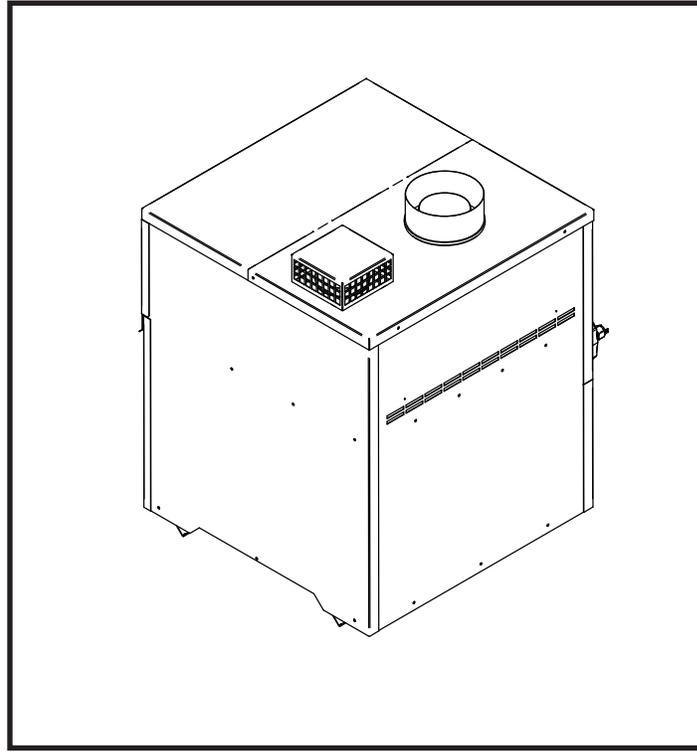


FIG. 2 Rear View

### ⚠ 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.

This appliance **MUST NOT** be installed in any location where gasoline or flammable vapors are likely to be present, unless the installation is such to eliminate the probable ignition of gasoline or flammable vapors.

### 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.

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

### ⚠ OWNER WARNING

**The information contained in this manual is intended for use by qualified professional installers, service technicians or gas suppliers. Consult your local expert for proper installation or service procedures.**

### DO NOT

Do not use this appliance if any part has been **under water**. The possible damage to a flooded appliance can be extensive and present numerous safety hazards. Any appliance that has been **under water** must be replaced.

### ⚠ WARNING

Should overheating occur or the gas supply fail 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 appliance.

# LIGHTING INSTRUCTIONS 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.

## 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 neighbors phone.
  - Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.
1. 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.
  2. BEFORE OPERATING, smell around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle to the floor.
  3. Use only your hand to turn the gas control lever. Never use tools. If the lever 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.
  4. 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.

## LIGHTING INSTRUCTIONS

1. **STOP!** Read the safety information above.
2. Turn off all electrical power to the appliance.
3. Remove the upper front access panel
4. Turn the power switch on the inside of the cabinet to "OFF" position.
5. Set the thermostat to the lowest setting.
6. This appliance is equipped with an ignition device which automatically lights the burners. **DO NOT** try to light the burners by hand.
7. Turn the gas control knob on the gas valve clockwise to the "OFF" position.

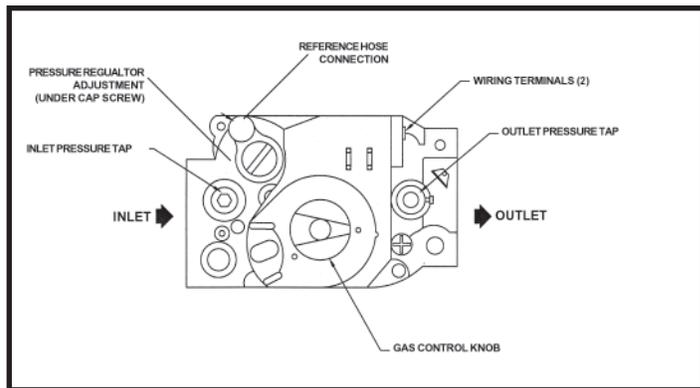


FIG. 3 Combination Gas Valve

8. Wait five (5) minutes to clear out any gas. If you smell gas, STOP! Follow the instructions in the safety information "What To Do If You Smell Gas". If you don't smell gas, go on to the next step.
9. Turn the gas control knob on the gas valve counterclockwise to the "ON" position.
10. Set the thermostat to the desired setting.
11. Turn the power switch on the inside of the cabinet to the "ON" position.
12. Replace control access panel.
13. Turn on all electrical power to the appliance.
14. 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. Turn off all electric power to the appliance if service is to be performed.
2. Turn the gas control knob on the gas valve clockwise to the "OFF" position. Do not force.

## MAINTENANCE

Listed below are items that must be checked to ensure safe reliable operations. Verify proper operation after servicing.

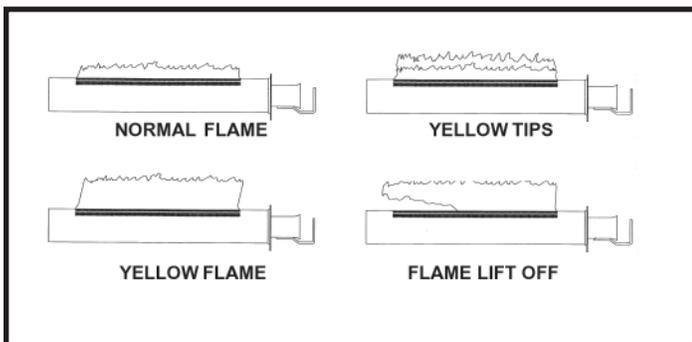
### ⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

1. Examine the venting system at least once a year. Check more often in first year to determine inspection interval. Check all joints and pipe connections for tightness, corrosion or deterioration. Clean screens in the venting air intake system as required. Have the entire system, including the venting system, periodically inspected by a qualified service agency.
2. Using the view port, located below the water connections, visually check main burner flames at each start up after long shutdown periods or at least every six months.

### ⚠ WARNING

**This area is hot and direct contact could result in burns.**

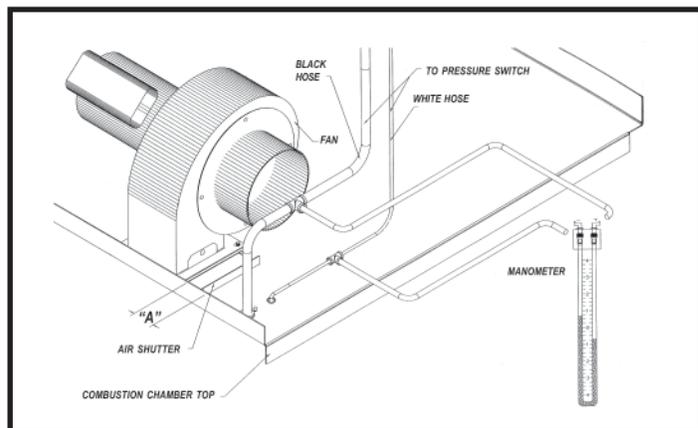


**FIG. 4 Burner Flame Patterns**

- a. **Normal Flame:** A normal flame is blue, with slight yellow tips, with a well defined inner cone and no flame lifting.
- b. **Yellow Tip:** Yellow tip can be caused by blockage or partial obstruction of air flow to the burner(s).
- c. **Yellow Flames:** Yellow flames can be caused by blockage of primary air flow to the burner(s) or excessive gas input. This condition **MUST** be corrected immediately.
- d. **Lifting Flames:** Lifting flames can be caused by over firing the burner(s) or excessive primary air.

If improper flame is observed, examine the venting system, ensure proper gas supply and adjust the combustion air.

3. **Combustion Air Shutter Adjustment:** This appliance uses a fan assisted combustion process. The fan air shutter is factory pre-set and should not need adjustment in most cases. If adjustment is required, the fan air shutter may be manually adjusted to a dimension specified for each model. Follow the steps below to adjust the fan air shutter if the appliance does not function properly or a continuous low air condition is observed:



**FIG. 5 Combustion Air Shutter Adjustment**

- A. Check for proper installation and draft in venting system. Correct as required.
- B. Remove upper front access door.
- C. Turn the power switch to the “OFF” position.
- D. Turn the gas valve knob to the “OFF” position
- E. Use a ruler to measure the distance from the base of the fan to the end of the air shutter. Compare this distance to the specified “A” dimension for the appliance.

**TABLE - A  
AIR SHUTTER  
ADJUSTMENT OPENING**

Btu/hr Input	“A” Dimension Opening
150,000	1-1/8”
199,999	1-1/4”
250,000	1-1/4”
300,000	1-1/4”

- F. If adjustment is necessary, follow these steps. If no adjustment is necessary, go to step “I”.
  - a. Loosen two combustion air blower mounting nuts and slide the air shutter to the specified “A” dimension. See Table A.
  - b. Tighten the combustion air fan mounting nuts.
  - c. Proceed to step “N” to check appliance for proper operation.

- G. If the appliance does not function properly after manually setting the air shutter, use a manahelic or slope gauge to set the air shutter based on differential air pressure.
- H. Install a tee in each of the hoses connecting the chamber pressure and burner venturi pressure to the pressure switch. Install a connecting hose from the branch of each tee to a **manometer**, manahelic or slope gauge, legible in 0.1" increments up to 3" w.c. Connect chamber pressure to the positive pressure side of the gauge and burner venturi pressure to the negative side of the gauge.
- I. Turn the power switch to "ON" position. Combustion air fan should start. Leave the gas valve "OFF".
- J. With the combustion air fan running, the gauge will read a system differential pressure. The proper differential pressure should be in the following range, depending upon length of pipe used:
- K. If adjustment is necessary, follow these steps. If no adjustment is necessary, go to step "L".
  - a. Loosen two combustion air blower mounting nuts, to allow the air shutter to slide. See Figure 5.
  - b. If differential pressure needs increasing, pull the air shutter out with thumb and finger gradually and evenly. Push in the air shutter to decrease differential pressure.
  - c. If the differential pressure cannot be obtained, shut the appliance down and inspect the vent system (both air and flue gas passageways) for obstructions or leaks.
  - d. Tighten combustion air blower mounting nuts.
- L. Turn the power switch to "OFF" position.
- M. Remove gauge and tee connections, ensuring connections are made at the pressure switch correctly; the chamber pressure to the connection and the burner venturi pressure to the connection.
- N. Turn the gas valve knob to "ON" position.
- O. Turn the power switch to "ON" position.
- P. Replace upper front access door.
- Q. When the main burner lights, observe the burner flame through observation port. Flames should be light blue in color with slight yellow tips; flames should be settled on burner head with no lifting.
- R. The appliance is now ready to operate.

**TABLE - B  
DIFFERENTIAL AIR PRESSURE**

Btu/hr Input	"A" Dimension Opening
150,000	1.4 - 1.8" w.c.
199,999	1.4 - 1.8" w.c.
250,000	1.5 - 1.9" w.c.
300,000	1.5 - 1.9" w.c.