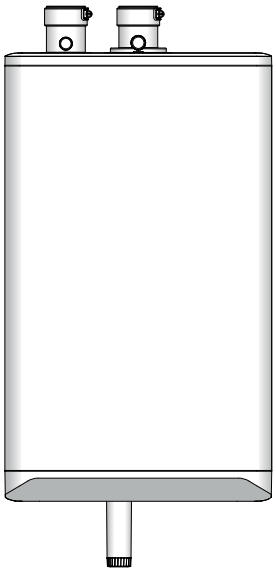
USER'S INFORMATION MANUAL

HIGH EFFICIENCY CONDENSING TANKLESS WATER HEATER

199,000 Btu/hr Model

(Natural Gas or Propane)



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 or other combustible materials 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 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 licensed installer, service agency or the gas supplier.

C US

C US NSF/ANSI 372 Low Lead Content

AHRI CERTIFIED™

⚠ 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.

SAFETY CONSIDERATIONS

Installation, start-up and servicing of this unit must be done with due care and attention, and should only be performed by competent, qualified, licensed and trained heating technicians. Failure to read and comply with all instructions and applicable national and local codes may result in hazardous conditions that could result in property damage and injury to occupants which in extreme cases might result in death.

HAZARDS & PRECAUTIONS

⚠ DANGER

Points out an imminently hazardous situation which must be avoided in order to prevent serious injury or death.

⚠ WARNING

Points out a potentially hazardous situation which must be avoided to prevent serious injury or death.

⚠ CAUTION

Points out a potentially hazardous situation which must be avoided to prevent possible moderate injury and/ or property damage

⚠ NOTE

Points out installation, maintenance and operation details that will result in enhanced efficiency, longevity and proper operation of your unit.

⚠ BEST PRACTICES

Points out recommendations for better installation.

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⚠ WARNING

HOT WATER CAN SCALD!

Water Temperatures over 125°F / 52°C can cause severe burns instantly or death from scalds.

Children, disabled, and elderly are at highest risk of being scalded.

- **Never leave them unattended in or near the shower, bathtub or sink.**
- **Never allow small children to use a hot water faucet or draw their own bath.**

To avoid any potential scald hazard or if codes require specific water temperatures at the hot water faucet, the installer may:

- **Install a field supplied thermostatic mixing valve at this appliance and ensure it is working properly.**

  AND
- **Set the thermostatic mixing valve to the lowest temperature which satisfies your hot water needs.**

TO AVOID INJURY:

- **Feel and adjust water temperature before bathing or showering.**
- **Water drained from the system drain valve may be extremely hot.**
- **Make sure all connections are tight.**
- **Direct water flow away from any person.**

⚠ DANGER

If overheating occurs 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 appliance

⚠ WARNING

Keep unit area free and clear of combustible materials, gasoline, and other flammable vapors and liquids.

⚠ WARNING

Combustion air must not be drawn from areas containing corrosive air from swimming pools or spas, including air directly next to outdoor pools and spas.

⚠ WARNING

The unit must not be exposed to water leaks from piping or components located overhead. This includes condensation dropping from un-insulated cold water lines overhead.

⚠ WARNING

In areas of high snow fall, users must check side wall exhaust vent and air intake terminations on a regular basis to ensure blockage does not occur.

⚠ WARNING

Do not use this unit if any part has been under water. Immediately call a qualified service technician to inspect the unit and to replace any part of the control system and any gas control that has been under water.

⚠ WARNING

Bacteria growth can develop in domestic hot water tanks and indirect water heaters if the minimum water temperature is not set high enough to prevent its growth. It is adviced to set the temperature above 131°F / 55°C

⚠ NOTE

This unit is equipped with a blocked vent shut-off system that closes the gas supply when it detects an irregular venting condition. If the vent blockage is easily accessible and removable, remove it. If the unit is in a fault, reset the unit by touching the wrench for 2 seconds. If the vent blockage is not easily removable, contact a qualified service agency to inspect and repair the system.

DANGER

- Water temperature over 125°F (52°C) can cause severe burns instantly or death from scalds.
- Children, disabled, and elderly are at highest risk of being scalded.
- See instruction manual before setting temperature at water heater.
- Feel water before bathing or showering.
- Temperature limiting valves are available, see manual.

TIME/TEMPERATURE RELATIONSHIP IN SCALDS

WATER TEMPERATURE	TIME TO PRODUCE A SERIOUS BURN
120°F (49°C)	More than 5 minutes
125°F (52°C)	1 ½ to 2 minutes
130°F (54°C)	About 30 seconds
135°F (57°C)	About 10 seconds
140°F (60°C)	Less than 5 seconds
145°F (63°C)	Less than 3 seconds
150°F (66°C)	About 1 ½ seconds
155°F (68°C)	About 1 second

Table courtesy of Shriners Burn Institute

WATER HEATER INSTALLATION GUIDELINES

WARNING

- This unit must be installed in accordance with local codes, if any; if not follow the National Fuel Gas Code, ANSI Z223.1/NFPA 54, or the Natural Gas and Propane Installation Code, CAN/CSA B149.1, as applicable.
- Failure to correctly install and operate this appliance can result in severe personal injury or death.
- The unit shall have a pressure relief valve installed within 6" [152mm] of the DHW HOT outlet connection.
  Refer to the unit's User Manual before operating the relief valve.
- The unit requires a pressure relief valve identified with the ASME V or HV symbol and set to relieve at or below 150psi of domestic water pressure and a minimum relieving capacity of 199,000 Btu/hr with 3/4" NPT threads. For safe operation of the unit, the relief valve must not be removed from its designated point of installation or plugged.
- Read and follow warnings and instructions.

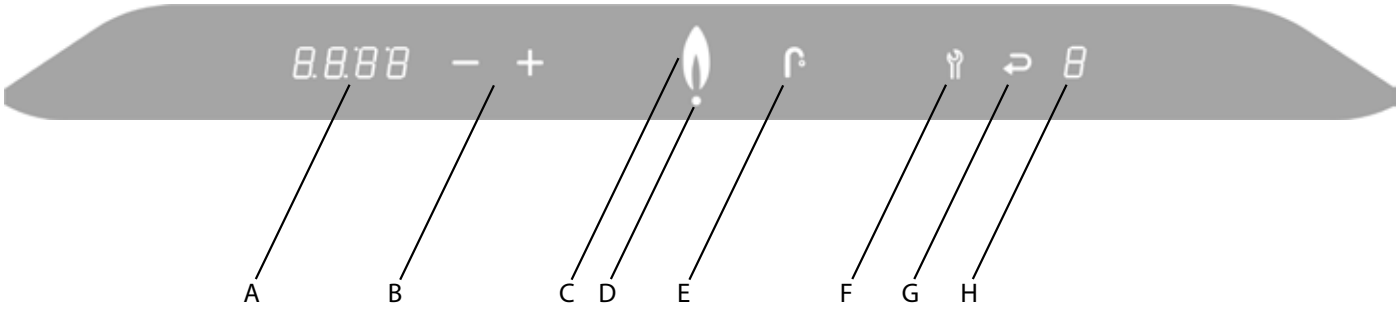
CAUTION

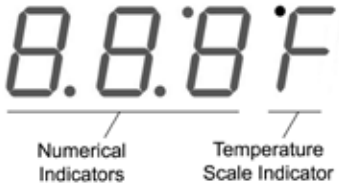
- Hotter water increases the risk of scald injury. Before changing the temperature setting, see instruction manual.

ADJUSTABLE TEMPERATURE SETTING

- Touch the panel above the white dot , then touch the Faucet . Adjust the water temperature with the Plus + and Minus – then touch the Return button to save the changes.

UNIT'S CONTROLLER





	ICON	FUNCTION
A	Numerical Display	Main Display
B	Plus & Minus	Temperature Adjustment
C	Flame	Burner ON Indicator
D	White Dot	Power ON Indicator
E	Faucet	DHW Indicator
F	Wrench	Service / Reset
G	Return Arrow	Enter / Save
H	Numerical Display	Service Display

Table 1: Controller Indicators and Buttons

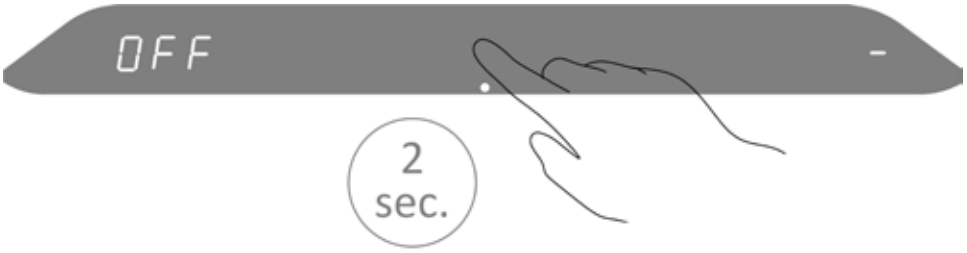
INSTALLER INTERFACE

Turning Appliance ON/OFF

To turn on the unit, touch the area above the small dot for 2 seconds. Now only the dot is illuminated.

To turn off the unit, touch the area above the small dot for 2 seconds.

A dash appears on the right and the text "OFF" is displayed on the left.



⚠ NOTE

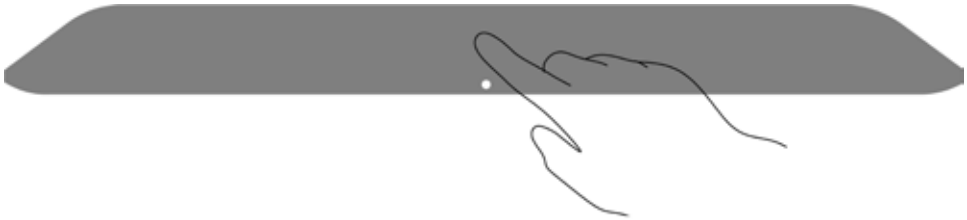
The domestic hot water thermostat is adjusted to its lowest temperature position (120°F/49°C) when shipped from the factory. It's recommended to set the domestic hot water thermostat to 120°F/49°C as an initial setting and further adjust as required. For energy efficient operation, this setting should be set as low as practical for the consumer's needs.

Programming Mode

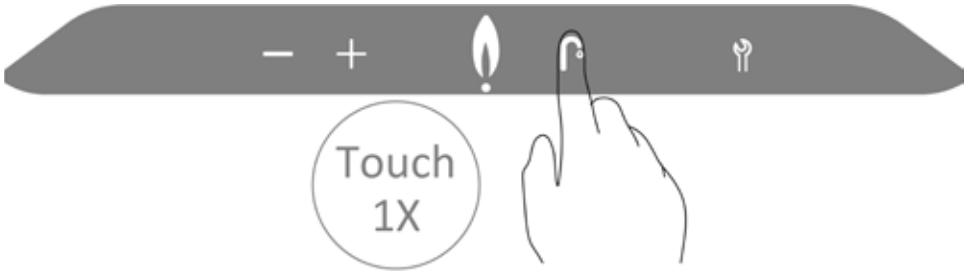
Adjusting the domestic hot water temperature

To adjust the DHW:

1. Touch the area above the white dot.

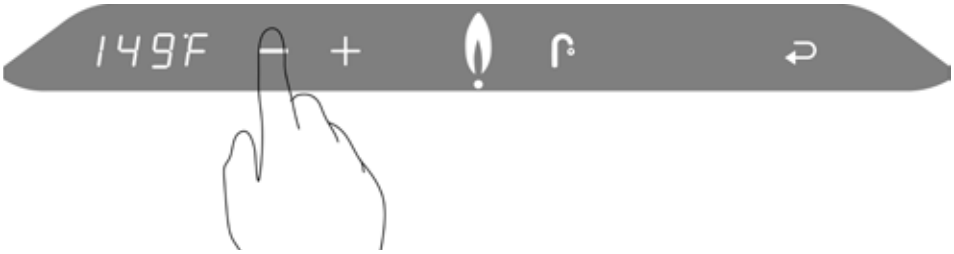


2. Touch the Faucet button.



The tankless domestic hot water temperature target appears on the main display.

3. To change the DHW temperature target, touch the Plus or Minus buttons.



4.

- To save the changes, touch the Return button.
- To exit without saving the changes, touch the area above the dot.

"P" to the right of the screen indicates that the changes have been saved.

TANKLESS DOMESTIC HOT WATER MODES

Tankless Domestic Hot Water - Standard and ECO Comfort Modes

Standard Mode (OFF): The heat exchanger will not maintain its domestic hot water temperature between demands for hot water.

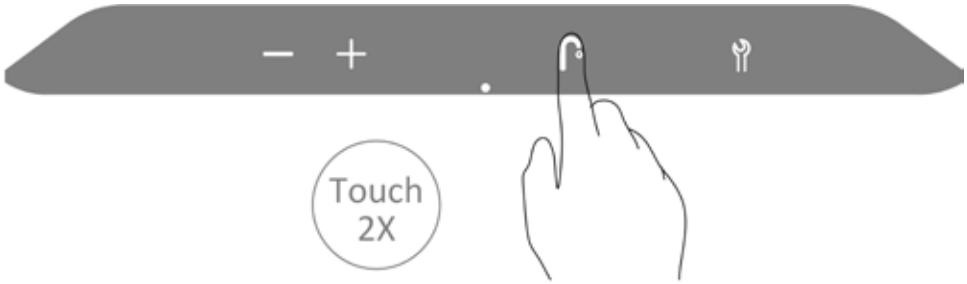
Comfort Mode (ON): The heat exchanger is maintained at the DHW temperature.

ECO Comfort Mode (ECO): This mode operates like the Comfort Mode but has the added advantage of learning when the domestic hot water is used. During the low use periods, the heat exchanger is allowed to cool.

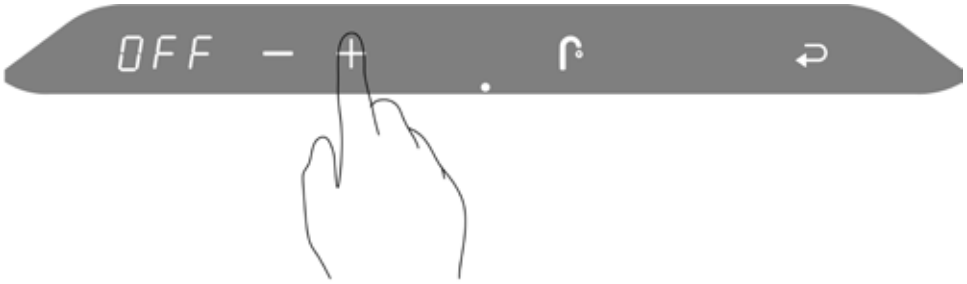
To switch between the 3 modes:

1. Touch the area above the dot.

2. Touch the Faucet button twice.



3. To change the DHW mode, touch the Plus or Minus buttons.



4.

- To save the changes, touch the Return button.
- To exit without saving the changes, touch the area above the dot.

⚠ NOTE

The unit is equipped with a Frost Protection feature. This feature will operate the unit's burner to help protect the unit from freezing. If the unit is in a hard lock-out condition the burner will not operate. We are not responsible for damages to the unit, and/ or related components, nor property damages that may result from freezing conditions.

SEQUENCE OF OPERATION

When the unit is powered up the controller enters a self-diagnostic mode, and displays the controller software version in the main display.

The Sequence of Operation is as follows:

1. The unit receives a call from Domestic Hot Water heating from the internal flow sensor.
2. The unit performs a safety check and energizes the fan for a pre-purge (*Service Display = 3*).
3. Once the 5-second pre-purge is compete, the unit enters a 5-second trial for ignition (*Service Display = 4*). If the unit fails to ignite, the unit will complete a 5-second inter-purge then another 5-second trial for ignition. This is repeated 4 times before a hard lock-out occurs. The Return button must be pressed to reset the controller and to allow for another attempt.
4. Once the burner is lit and flame has been proven the boiler operates as it is programmed (*Service Display =* for Domestic Hot Water).
5. If the unit exceeds its target temperature and there is still a call for hot water the burner will turn off. (*Service Display = 1*)
6. If the burner is on to maintain the heat exchanger temperature for DHW Comfort mode (*Service Display = 7*).
7. If the burner is on for frost protection (*Service Display = 9*).

MAIN DISPLAY	LIT DISPLAY	DESCRIPTION
OFF	-	The unit is OFF. Press the space above the Dot for 2 seconds to turn on the unit.
(blank)	(blank)	No Call for Hot Water - Standby
XXX	2	Self-test – When power is applied to the unit the controller enters a self diagnostic mode for 5 seconds
XXX	3	Fan Pre-purge and Post-purge
XXX	4	Trial for Ignition and Flame Proving
XXX	+	Heating – DHW
XXX	7	Burner on for Comfort mode
XXX	9	Freeze Protection mode

Table 2: Operating Display and Service Display Codes.

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LIGHTING & SHUTTING DOWN THE UNIT

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 (LP) is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS

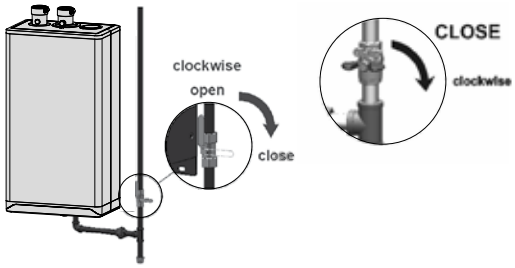
- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

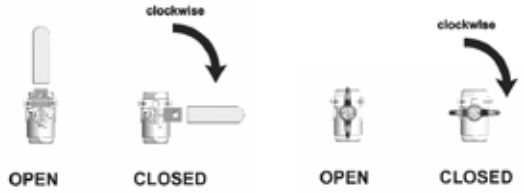
C. Use only your hand to turn the gas control valve. Never force using tools. If the valve will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

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 before doing anything.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance by selecting main power switch to OFF.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. Locate manual gas shut-off valve (see pictures below) and turn clockwise to "CLOSE".
6. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow step "B" in the safety information above on this label. If you don't smell gas, go to the next step.
7. Turn gas control valve to OPEN.
8. Turn on electric power to appliance by turning main power switch to ON.
9. Set thermostat to desired setting.
10. If the appliance will not operate, follow the instructions "TO TURN OFF GAS APPLIANCE" and call your service technician or gas supplier.





TO TURN OFF GAS APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance by turning main power switch to OFF.
3. Turn gas control valve to CLOSE.

MAINTENANCE

General Care

- Keep combustible materials and flammable liquids and vapors away from the unit.
- Keep vent terminals clear of obstructions (snow, dirt, etc.).

Regular Maintenance

- Check the domestic hot water temperature at the faucet to ensure the temperature is not too hot. If the temperature is too hot, you can adjust the water temperature with the unit's controller. If these adjustments are not correcting the issue, call your qualified service technician for service.
- Check the pressure relief valve and discharge piping for signs of leakage or moisture. If water or moisture is found, contact your qualified service technician as soon as possible for service.
- Regularly check the condensate trap and outlet pipe. The condensate trap must be full of water. The outlet hose may be connected to a condensate neutralizer, and if so, check that the pH of the water coming out of the neutralizer is above 6.0pH. If the pH is below 6.0 then the neutralizer will need to be re-charged or replaced. Contact your qualified service technician for service.

Annual Maintenance

⚠ WARNING

Annual Maintenance must only be done by a qualified service technician.

The unit must be inspected by your qualified service technician for the following:

- Inspect the flue gas exhaust and air intake connections. All connections should be tight and leak free.
- Inspect flue gas exhaust piping, combustion air piping and terminations.
- Inspect the unit's interior and vacuum if required.
- Check for water, gas and condensate leaks in the unit and around the unit.
- Check the condensate trap and clean if required. Re-fill the trap and re-install.
- Check the water pressure.
- Check the electrical connections.
- Check the ignition electrode and remove oxidation from the electrode. Replace if necessary.
- Check the gas valve and ignition cable.
- Check the controller settings.
- Check the burner's flame. Should be a quick and quiet ignition across the full burner.
- If required, clean the heat exchanger and the burner.

⚠ CAUTION

Before testing the relief valve, make certain the discharge pipe is properly connected to the valve outlet and arranged to contain and safely dispose of water to an open drain.

Relief Valve - Maintenance and Testing

The field-supplied relief valve manufacturer requires that under normal operating conditions a “try lever test” must be performed **once a year.** Under severe service conditions, or if corrosion and/or deposits are noticed within the valve body, you must test more often. Also perform a “try lever test” at the end of any non-service period.

Test at or near maximum operating pressure by holding the test lever fully open for at least 5 seconds to flush the valve seat free of sediment and debris. Then release the lever and permit the valve to snap shut.

If the lever does not activate, or there is no evidence of discharge, discontinue use of equipment immediately, and contact a licensed contractor or qualified service personnel.

If the relief valve does not completely seal, and fluid continues to leak from the discharge pipe, perform the test again to try and flush any debris that may be lodged in the valve. If repeated attempts fail to stop the leakage, contact a licensed contractor or qualified service personnel to replace the valve.

⚠ NOTE

The limited warranty provided with the water heater does not cover defects, malfunctions or failures resulting from water conditions that are not in accordance with the specifications in the table 3.

Domestic Hot Water System

Quality of the domestic cold water is very important to the longevity of the unit. The recommended pH of the domestic water is between 6.5 and 8.5. The internal domestic water heat exchanger tubing and the flow sensor is subject to fouling if exposed to hard water (over 11.68 grains of hardness) or has a TDS of 500mg/L or higher. *See Table 3.*

DESCRIPTION	MAX	MIN
Water Pressure	150 PSI	40 PSI
Programmable Water Temperature	149°F (65°C)	105°F (40°C)
Minimum DHW Flow Rate to Initiate Operation	N/A	0.5 GPM
pH	8.5	6.5
Total Dissolved Solids (TDS)	500 mg/L	
Total Hardness	250 mg/L 14.6 gr/gal	
Aluminum	0.2 mg/L	0.05 mg/L
Chlorides	250 mg/L	
Copper	1 mg/L	
Iron	0.3 mg/L	
Manganese	0.05 mg/L	
Zinc	5 mg/L	

Table 3: Domestic Water Quality Guidelines

SERVICE RECORD

DATE	LICENSED CONTRACTOR	DESCRIPTION OF WORK DONE

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