

## Required Maintenance

The appliance must be inspected annually by a licensed professional. Repairs and maintenance should be performed by a licensed professional. The licensed professional must verify proper operation after servicing.

### **WARNING / AVERTISSEMENT**

To protect yourself from harm, before performing maintenance:

- Turn off the electrical power supply by unplugging the power cord or by turning off the electricity at the circuit breaker. (The temperature controller does not control the electrical power.)
- Turn off the gas at the manual gas valve, usually located immediately below the water heater.
- Turn off the incoming water supply. This can be done at the isolation valve immediately below the water heater or by turning off the water supply to the building.

### **WARNING / AVERTISSEMENT**

Keep the appliance area clear and free from combustible materials, gasoline, and other flammable vapors and liquids.

**The following maintenance items are required for the proper operation of your water heater.**

The appliance must be inspected annually by a licensed professional. Repairs and maintenance should be performed by a licensed professional. The licensed professional must verify proper operation after servicing.

#### **Cleaning**

It is imperative that control compartments, burners, and circulating air passageways of the appliance be kept clean.

Clean as follows:

1. Turn off and disconnect electrical power. Allow to cool.
2. Close the water shut off valves. Remove and clean the water inlet filter.
3. Remove the front panel by removing 4 screws.
4. Use pressurized air to remove dust from the main burner, heat exchanger, and fan blades. Do not use a wet cloth or spray cleaners on the burner. Do not use volatile substances such as benzene and thinners. They may ignite or fade the paint.
5. Use soft dry cloth to wipe cabinet.

#### **Air Inlet / Exhaust Outlet**

The air inlet and exhaust outlet should be inspected at least annually for blockages or damage. If it is blocked contact a licensed professional.

#### **Motors**

Motors are permanently lubricated and do not need periodic lubrication. However you must keep fan and

motor free of dust and dirt by cleaning annually.

#### **Temperature Controller**

Use a soft damp cloth to clean the temperature controller. Do not use solvents.

#### **Lime / Scale Build-up and Water Quality**

If you receive diagnostic code "LC#" (LC1, LC2,...), refer to the procedure, *Flushing the Heat Exchanger*. Refer to the section on *Water Quality* to see if your water needs to be treated or conditioned. (When checking maintenance code history, "00" is substituted for "LC#".)

**The water must be potable, free of corrosive chemicals, sand, dirt, or other contaminants. It is up to the installer to ensure the water does not contain corrosive chemicals, or elements that can affect or damage the heat exchanger. Water that contains chemicals exceeding the levels below affect and damage the heat exchanger. Replacement of the heat exchanger due to water quality damage is not covered by the warranty.**

#### **Snow Accumulation**

Keep the area around flue terminal free of snow and ice. The appliance will not function properly if the intake air or exhaust is impeded (blocked or partially blocked) by obstructions.

#### **Coastal Installations**

Installations located in or near coastal areas may require additional maintenance due to corrosive airborne ocean salt.

## Clean the water filter

Clean the inlet water filter by closing the cold and hot water inlet isolation (shut-off) valves. Put a bucket under the filter at the bottom of the water heater to catch any water that is contained inside the unit. Unscrew the water filter. Rinse the filter to remove any debris. Install the filter and open the isolation valves.

**WARNING / AVERTISSEMENT**

Testing the pressure relief valve should only be performed by a licensed professional. Water discharged from the pressure relief valve could cause severe burns instantly or death from scalds.

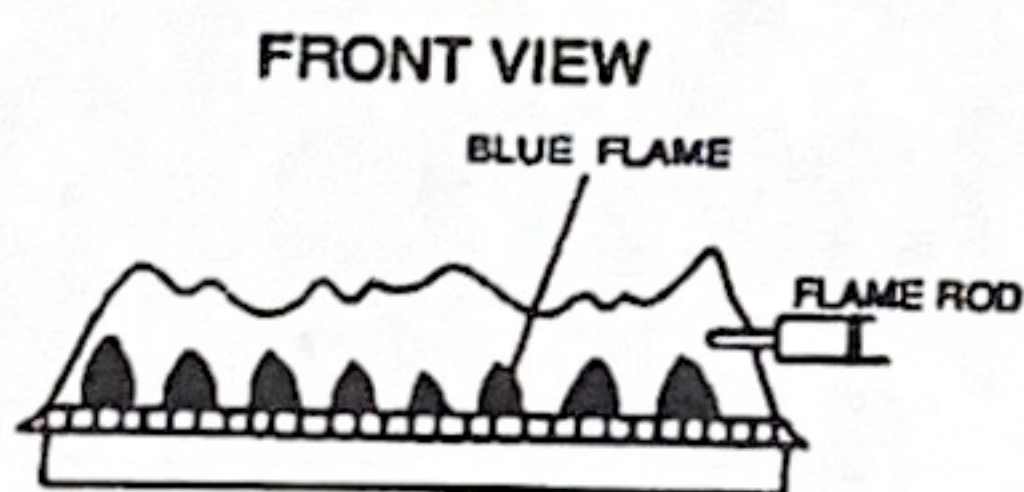
### Pressure Relief Valve:

Operate the valve manually once a year. In doing so, it will be necessary to take precautions with regard to the discharge of potentially scalding hot water under pressure. Ensure discharge has a place to flow. Contact with your body or other property may cause damage or harm.

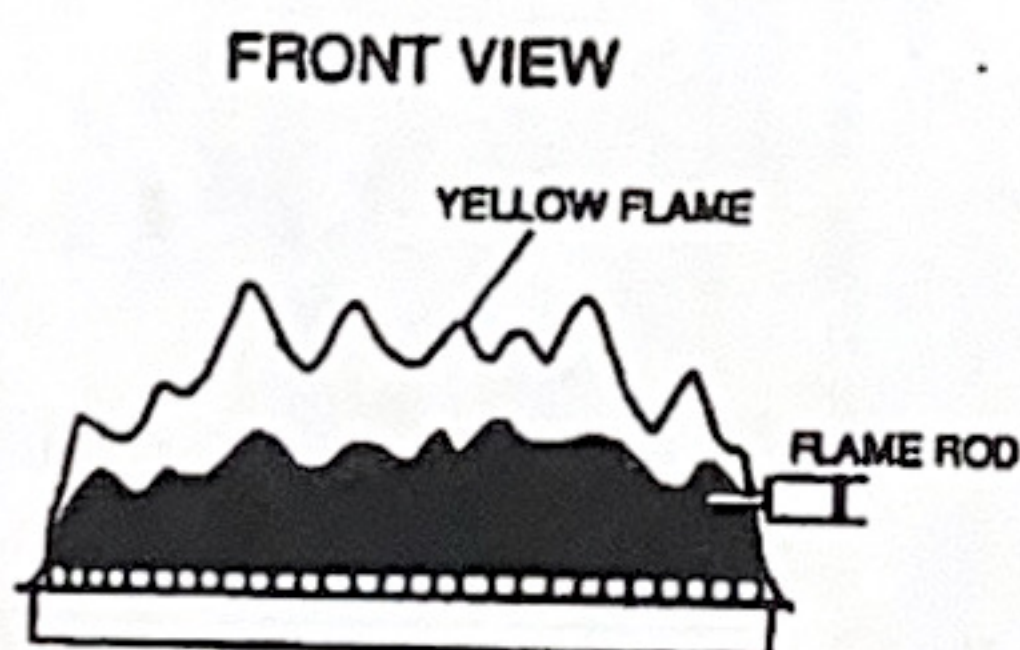
### Visual Inspection of Flame

Verify proper operation after servicing. The burner must flame evenly over the entire surface when operating correctly. The flame must burn with a clear, blue, stable flame. See the parts breakdown of the burner for the location of the view ports. The flame pattern should be as shown in the figures below.

#### SATISFACTORY



#### UNSATISFACTORY



### Freeze Protection

Make sure that in case of freezing weather that the water heater and its water lines are adequately

protected to prevent freezing. Damage due to freezing is not covered by the warranty. Refer to the section on Freeze Protection.

- Drain down solenoid valves be purchased and installed that will automatically drain the unit if power is lost. These are available in a kit, 104000059. (The condensate trap is not affected by the auto drain down solenoid valves and will have to be manually drained.)

### Winterizing

These recommendations are intended to suggest practices which are effective for winterizing the water heater. They should be used as a guide only. No liability is assumed for any issues resulting from the use of this information.

#### GAS

Shut off the gas to the water heater. It is generally preferable to shut off the gas service to the entire location if gas is not going to be used.

#### WATER

Shut off the cold water supply to the water heater. It is generally preferable to shut off the water to the entire location if water is not going to be used.

Drain the water heater by opening the drain valves on the cold water line and hot water line.

Open several hot water taps and remove the filter assembly at the water inlet in order to allow room for expansion in case there is water in the lines that freeze.

#### ELECTRIC

Disconnect the power supply by either unplugging the electrical cord or by turning off the circuit breaker to the water heater to prevent potential damage from irregular power surges or interruptions.

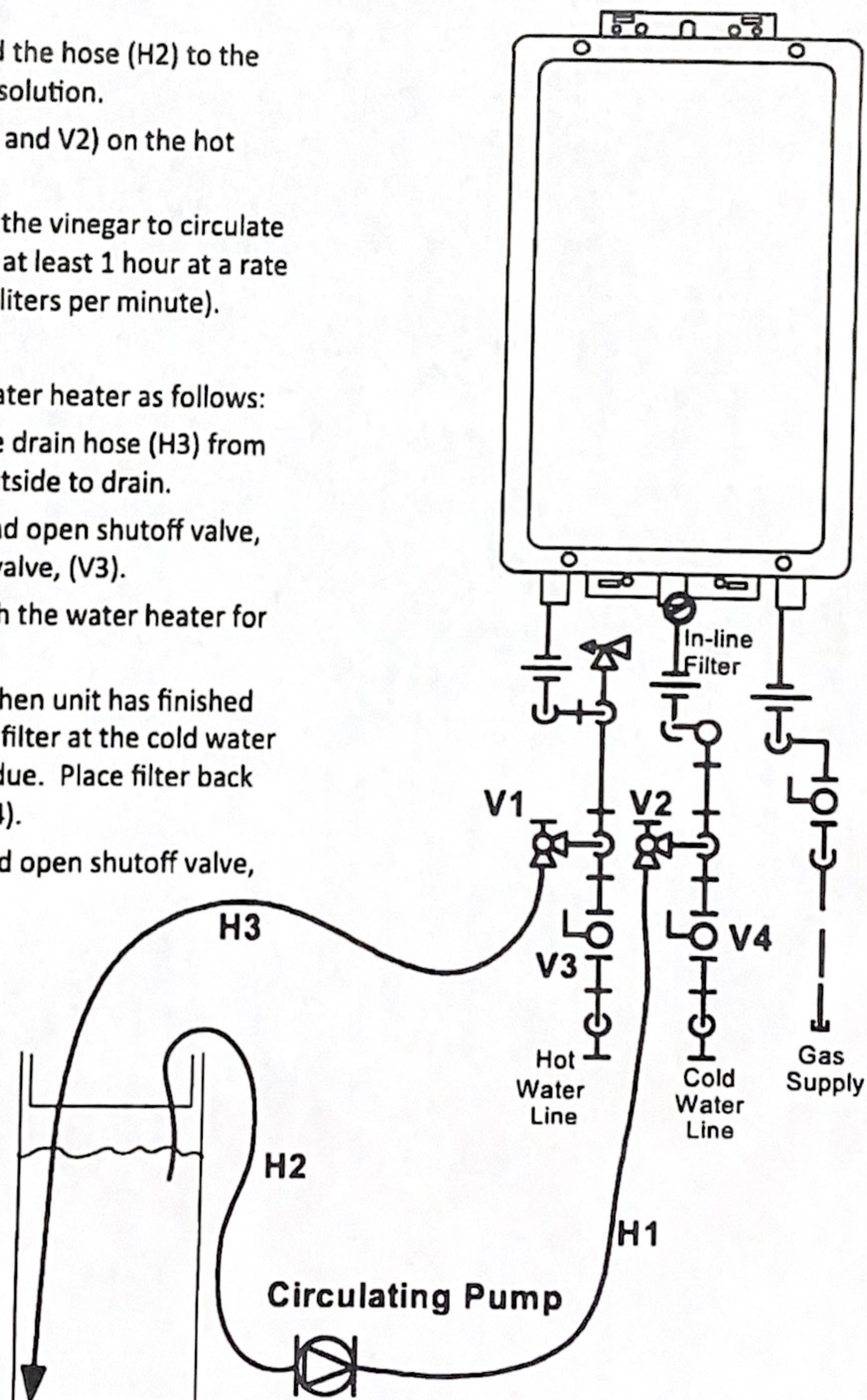
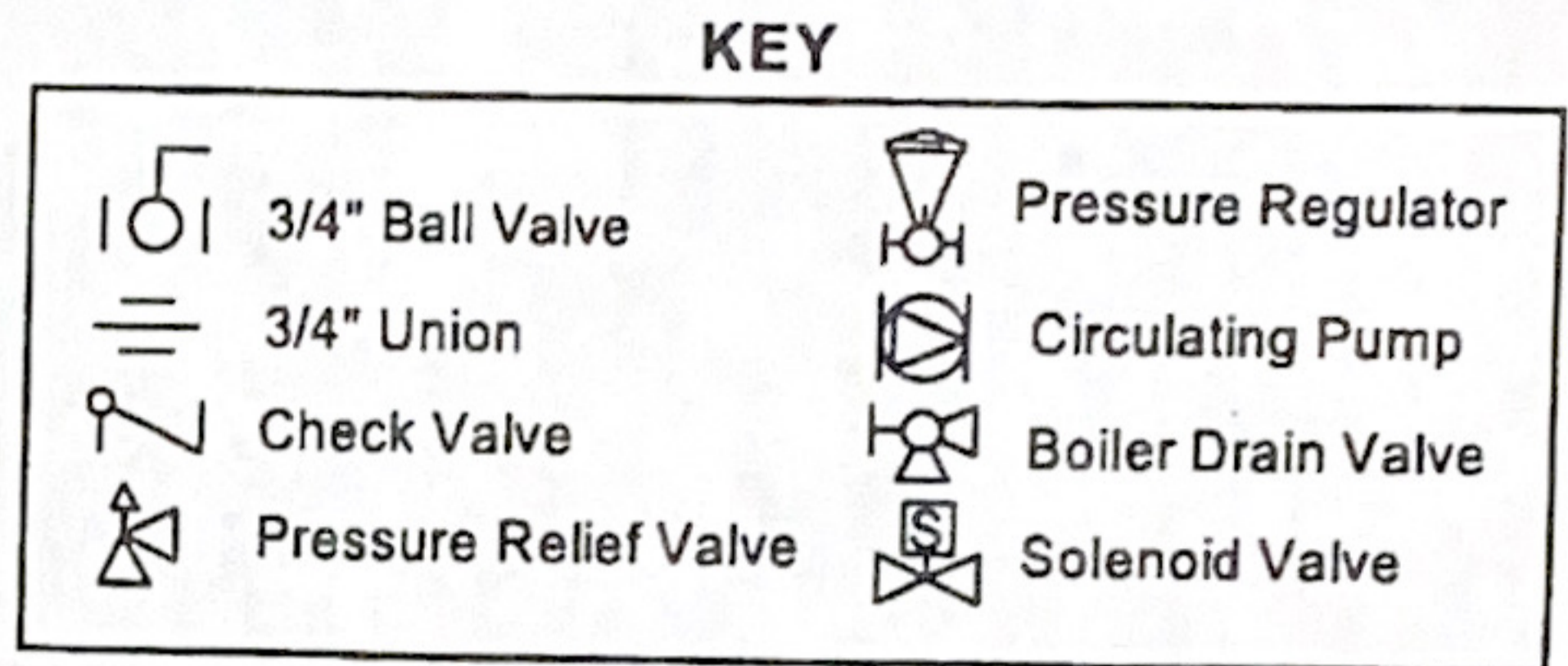
#### AIR INLET AND EXHAUST

Place a cover over the front panel (air inlet and exhaust). The cover should be easy to apply and remove. This will prevent debris, leaves, and small animals from entering the water heater which could cause air flow issues upon return to service.

# Flushing the heat exchanger

An LC or "00" diagnostic code indicates the unit is beginning to lime up and must be flushed. Failure to flush the appliance will cause damage to the heat exchanger. Damage caused by lime build-up is not covered by the unit's warranty.

1. Disconnect electrical power to the water heater.
2. Close the shutoff valves on both the hot water and cold water lines (V3 and V4).
3. Connect pump outlet hose (H1) to the cold water line at service valve (V2).
4. Connect drain hose (H3) to service valve (V1).
5. Pour 4 gallons of undiluted virgin, food grade, white vinegar into pail.
6. Place the drain hose (H3) and the hose (H2) to the pump inlet into the cleaning solution.
7. Open both service valves (V1 and V2) on the hot water and cold water lines.
8. Operate the pump and allow the vinegar to circulate through the water heater for at least 1 hour at a rate of 4 gallons per minute (15.1 liters per minute).
9. Turn off the pump.
10. Rinse the vinegar from the water heater as follows:
  - a. Remove the free end of the drain hose (H3) from the pail. Place in sink or outside to drain.
  - b. Close service valve, (V2), and open shutoff valve, (V4). Do not open shutoff valve, (V3).
  - c. Allow water to flow through the water heater for 5 minutes.
  - d. Close shutoff valve (V4). When unit has finished draining remove the in-line filter at the cold water inlet and clean out any residue. Place filter back into unit and open valve (V4).
  - e. Close service valve, (V1), and open shutoff valve, (V3).
11. Disconnect all hoses.
12. Restore electrical power to the water heater.



## Manual Draining of the Water Heater

### **⚠ WARNING / AVERTISSEMENT**

To avoid burns, wait until the equipment cools down before draining the water. The water in the appliance will remain hot after it is turned off.

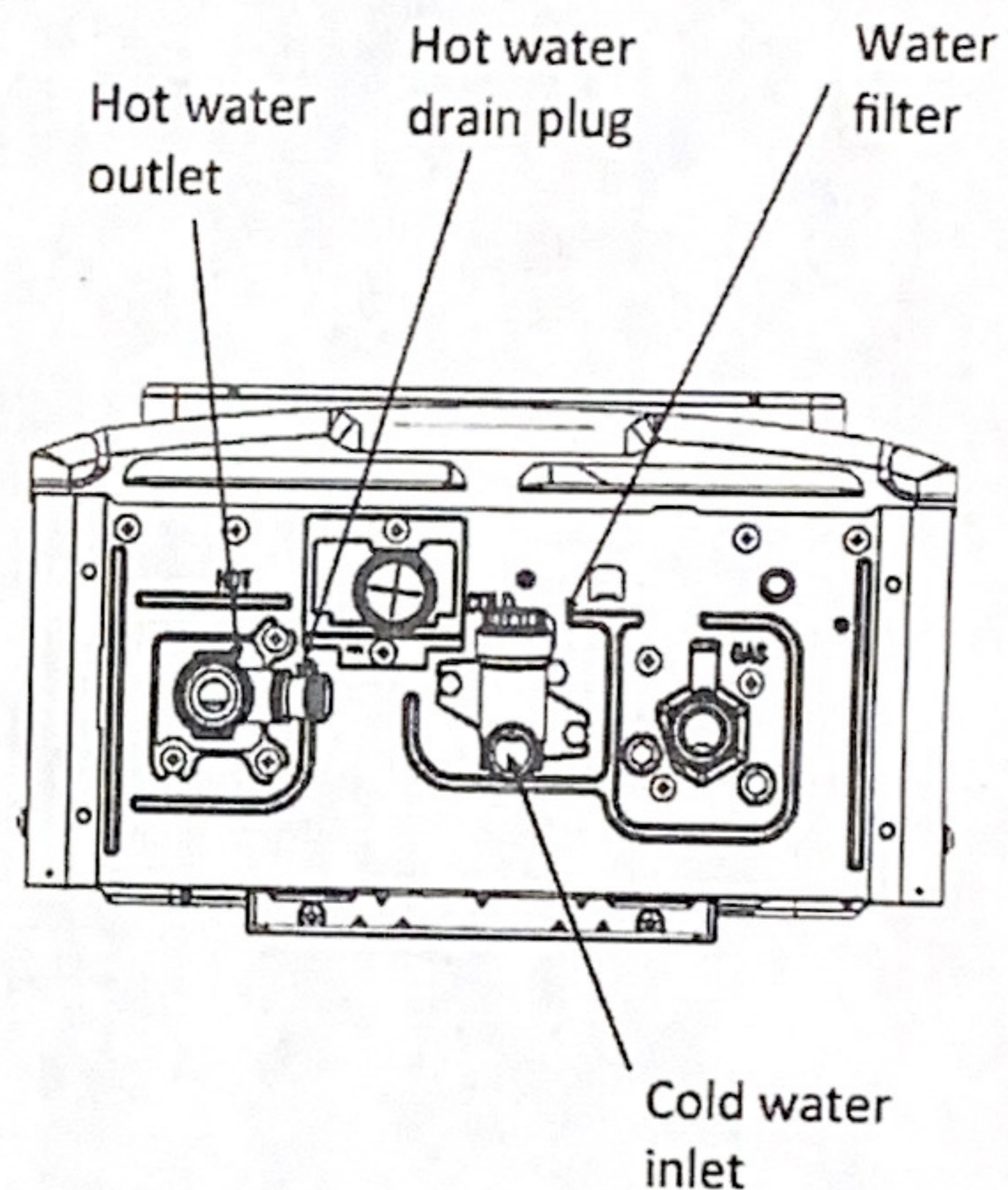
If the water heater is not going to be used during a period of possible freezing weather, it is recommended that the water inside the water heater be drained.

#### To manually drain the water:

1. Shut off cold water supply and gas supply.
2. Turn off the temperature controller.
3. Disconnect the power to the water heater.
4. Place a container to catch the water. Remove the drain caps on both isolation valves and open both valves above the caps (blue and red valve handles). -OR- remove hot water drain plug.
5. Remove water filter to drain the cold water.

#### To resume normal operation:

1. Confirm that the gas supply is turned off, and that all taps are closed.
2. Screw in the water filter in the cold water inlet.
3. Replace the drain caps and close both isolation valves. -OR- install hot water drain plug.
4. Open the cold water supply.
5. Open a tap and confirm that water flows, and then close.
6. Turn on the power.
7. After confirming that the temperature controller is off, turn on the gas supply.
8. Turn on the temperature controller.

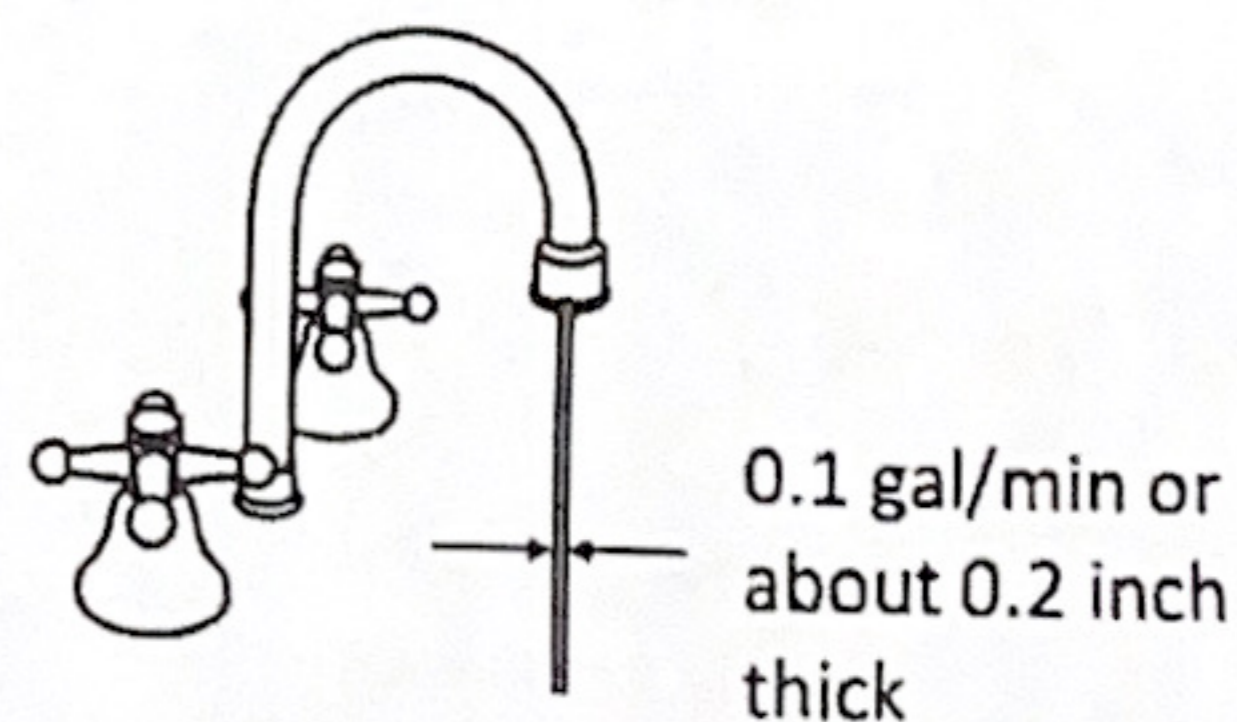


\* Use a wrench or other tool to unscrew the hot water drain plug.

#### **Running a low volume of water through the water heater to prevent freezing**

If the temperature exceeds the ability of the water heater to freeze protect itself, or if power is lost, the following steps may prevent the water heater and external piping from freezing. (Units connected with J-LINK (2 unit link) should be drained to prevent freezing if not in use.)

1. Turn the water heater off.
2. Close the gas supply valve.
3. Turn on a hot water tap to flow water about 0.1 gal/min or where the stream is about 0.2 inches thick.



#### **When the water heater or external piping has frozen**

1. Do not operate the water heater if it or the external piping is frozen.
2. Close the gas and water valves and turn off the power.
3. Wait until the water thaws. Check by opening the water supply valve.
4. Check the water heater and the piping for leaks.

# Consumer Warranty

## Limited Warranty

### What is covered?

This Limited Warranty covers any defects in materials or workmanship when the product is installed and operated according to Rinnai written installation instructions, subject to the terms within this Limited Warranty document. This Limited Warranty applies only to products that are installed correctly. Improper installation may void this Limited Warranty. In order for this warranty to apply, it is required that you use a licensed professional who has attended a Rinnai installation training class before installing this water heater. This Limited Warranty extends to the original purchaser and subsequent owners, but only while the product remains at the site of the original installation. This Limited Warranty only extends through the first installation of the product and terminates if the product is moved or reinstalled at a new location.

### How long does coverage last?

Item	Period of Coverage (from date of purchase)		
	Residential Applications	If installed with a tankless isolation valve kit for residential applications	If used for both residential water heating and space heating purposes
Heat Exchanger	10 years [1]	12 years [1]	10 years [2]
All Other Parts and Components	5 years [1]	5 years [1]	5 years [2]
Reasonable Labor	1 year	1 year	1 year

[1] The warranty period is reduced to 3 years from date of purchase when the water heater is used as a circulating water heater within a hot water circulation loop, where the water heater is in series with a circulation system and all circulating water flows through the water heater, and where an on-demand recirculation system is not incorporated.

On-demand recirculation is defined as a hot water recirculating loop or system that utilizes existing hot and cold lines or a dedicated return line, and only activates when hot water is used. It can be activated by a push button, motion sensor, or voice activation but not by a temperature sensor. A timer added to a standard recirculating pump is not considered as on-demand.

[2] The air handler pump must be sized for the flow rate of the heat load, pressure losses through air handler coil, pressure losses through Rinnai tankless water heater, piping and components connecting the air handler and tankless unit. Refer to the tankless water heater pressure loss curve and consult with the air handler/component manufacture for pressure loss information.

### What will Rinnai do?

Rinnai will repair or replace the covered product or any part or component that is defective in materials or workmanship as set forth. Rinnai will pay reasonable labor charges associated with the repair or replacement of any such part or component. All repair parts must be genuine Rinnai parts. All repairs or replacements must be performed by an individual or servicing company that is properly trained, state qualified or licensed to do the type of repair.

Replacement of the product may be authorized by Rinnai only. Rinnai does not authorize any person or company to assume for it any obligation or liability in connection with the replacement of the product. If Rinnai determines that repair of a product is not possible, Rinnai will replace the product with a comparable product at Rinnai's discretion. The warranty claim for product parts and labor may be denied if a component or product returned to Rinnai is found to be free of defects in material or workmanship; damaged by improper installation, use or operation; or damaged during return shipping.

### How do I get service?

You must contact a state qualified/licensed professional for the repair of a product under this Warranty. For the name of a licensed professional please contact your place of purchase, visit the Rinnai website ([www.rinnai.us](http://www.rinnai.us)), call Rinnai at 1-800-621-9419 or write to Rinnai at 103 International Drive, Peachtree City, Georgia 30269.

Proof of purchase is required to obtain warranty service. You may register this product within 30 days of purchase or you may show proof of purchase with a dated sales receipt. To register your tankless water heater, please visit [www.rinnai.us](http://www.rinnai.us). For those without internet access, please call 1-800-621-9419. Receipt of Registration by Rinnai will constitute proof-of-purchase for this product. However, Registration is not necessary in order to validate this Warranty.

#### What is not covered?

- accident, abuse, or misuse
- alteration of the product or any component part
- misapplication of this product
- improper installation (such as but not limited to)
  - ◊ product being installed in a corrosive environment
  - ◊ condensate damage
  - ◊ improper venting
  - ◊ incorrect gas type
  - ◊ incorrect gas or water pressure
  - ◊ absence of a drain pan under the appliance
- water quality
- Improper maintenance (such as but not limited to scale build-up, freeze damage, or vent blockage)
- incorrect sizing
- any other cause not due to defects in materials or workmanship
- problems or damage due to fires, flooding, electrical surges, freezing or any acts of God.
- force majeure

This Warranty does not cover any failures or operating difficulties due to the following:

There is no warranty coverage on product installed in a closed loop application, commonly associated with space heating only applications.

The integrated controller on indoor models has a 1 year warranty on parts.

There is no warranty coverage for commercial applications.

This Limited Warranty does not apply to any product whose serial number or manufacture date has been defaced.

This Limited Warranty does not cover any product used in an application that uses chemically treated water such as a pool or spa heater. This appliance is suitable for filling large or whirlpool bath tubs with potable water. Refer to the Water Quality Section in the Operation and Installation Manual.

#### Limitation on warranties

No one is authorized to make any other warranties on behalf of Rinnai America Corporation. Except as expressly provided herein, there are no other warranties, expressed or implied, including, but not limited to warranties of merchantability or fitness for a particular purpose, which extend beyond the description of the warranty herein and further Rinnai shall not be liable for indirect, incidental, special, consequential or other similar damages that may arise, including lost profits, damage to person or property, loss of use, inconvenience, or liability arising from improper installation, service or use. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

Any implied warranties of merchantability and fitness arising under state law are limited in duration to the period of coverage provided by this Limited Warranty, unless the period provided by state law is less. Some states do not allow limitations on how long an implied Limited Warranty lasts, so the above limitation may not apply to you.

This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

[www.rinnai.us/warranty](http://www.rinnai.us/warranty)