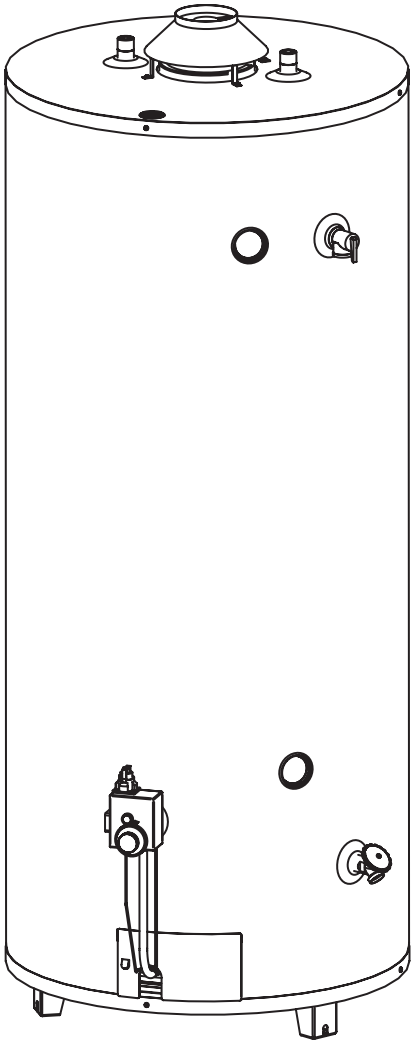
LIGHT DUTY COMMERCIAL GAS-FIRED WATER HEATERS
OWNER'S MANUAL
INSTALLATION AND OPERATING INSTRUCTIONS



⚠ WARNING

This water heater IS NOT design certified for installation in a manufactured (mobile) home or for installation outdoors.

⚠ WARNING

If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury, or death.

DO NOT store or use gasoline or other flammable vapours 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.
- **From a neighbour's phone, immediately call your gas supplier.** 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.

IMPORTANT

READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING THE INSTALLATION. PROPER INSTALLATION WILL PROVIDE SAFE & EFFICIENT SERVICE, AND AVOID NEEDLESS EXPENSE NOT COVERED BY THE WARRANTY. READ THE PRODUCT WARRANTY CONTAINED IN THIS MANUAL AND REMEMBER TO FILL OUT AND RETURN TO THE MANUFACTURER, ALL RELEVANT WARRANTY CARDS AND CERTIFICATES. SHOULD YOU HAVE ANY QUESTIONS, PLEASE CONTACT YOUR LOCAL DEALER OR REFER TO THE *GETTING SERVICE FOR YOUR WATER HEATER* SECTION OF THIS MANUAL. SAVE THIS MANUAL FOR FUTURE REFERENCES.

For your records, write the model and serial number here:

Model # _____

Serial # _____

AHRI MEMBER

nqa canada ISO 9001 REGISTRED QUALITY SYSTEM

54000016
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SAFETY INFORMATION

Your safety and the safety of others is extremely important during the installation, operation, and servicing of this water heater. Many safety related messages have been provided in this manual and on your water heater. Always read and obey all safety messages. These messages will point out the potential hazard, tell you how to reduce the risk of injury, and tell you what will happen if the instructions are not followed.

This is the safety alert symbol. This symbol alerts you to potential hazards that can kill or hurt you and others. All safety messages will follow the safety alert symbol and either the word “DANGER” or “WARNING”.

⚠ DANGER Serious injury or death can occur if you do not follow the instructions immediately.

⚠ WARNING Serious injury or death can occur if you do not follow the instructions.

⚠ WARNING

DO NOT use this water heater if any part has been under water. Immediately call a qualified service technician to inspect the water heater and to replace any part of the control system and any gas control which has been under water. Failure to follow this instruction can result in property damage, personal injury, or death.

IMPORTANT

These instructions have been written as a guide for the proper installation and operation of your water heater, and the manufacturer of this water heater will not accept any liability where these instructions have not been followed. However, for your safety and to avoid damage caused by improper installation, this water heater must be installed by a Certified Licensed Professional, and meet all local codes or, in the absence of local codes, CAN/CGA B149.1, Natural Gas and Propane Gas Installation Code, in Canada, and/or the National Fuel Gas Code, ANSI Z223.1/NFPA 54, in the United States.

Before proceeding with the installation instructions:

1) Inspect the water heater and its component parts for possible damage. **DO NOT** install or attempt to repair any damaged component parts. If you detect any damage, contact the dealer where the water heater was purchased or the manufacturer listed on the warranty card.

2) Verify that the type of gas being supplied corresponds to that which is marked on the rating plate and gas control valve of the water heater.

Location

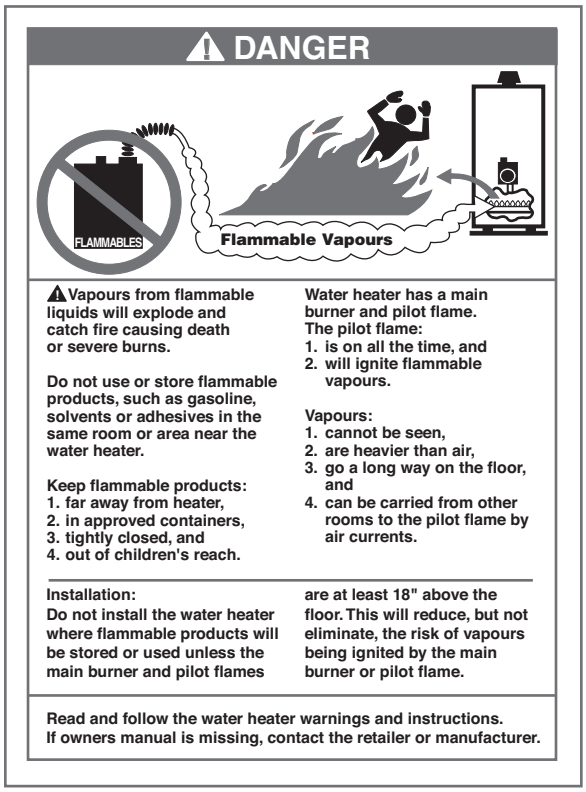
The water heater should be located as close as possible to the chimney and to the main use of hot water. This location must not be subject to freezing temperatures. The water heater should be positioned, so that there is easy access to the burner, gas control valve, and drain valve. It must be located close to a suitable free-flowing floor drain. Where a floor drain is not adjacent to the water heater, a suitable drain pan must be installed under the water heater **(see Figure 8)**. This drain pan should be at least four (4) inches (10.2 cm) larger than the diameter of the water heater, and at least one (1) inch (2.5 cm) deep, providing access to the drain valve. This pan must not restrict the flow of ventilation and combustion air. This pan must be piped to a suitable drain to prevent damage to property in the event of a water leak from the piping, the relief valve, or the water heater.

Sooner or later, all water heaters leak. The manufacturer, based on national building codes, has given the necessary instructions to prevent damage to the building. Under no circumstances is the manufacturer to be held liable for any water damage in connection with this water heater.

This water heater is approved for installation on either a combustible or non-combustible floor. However, should this water heater be installed directly on carpeting, the carpeting must be protected by a wood or metal panel beneath the water heater. This panel must extend at least three (3) inches (7.6 cm) beyond the width and depth of the water heater. Should the water heater be installed in an alcove or closet, the entire floor area must be covered by the panel.

Minimum Clearances

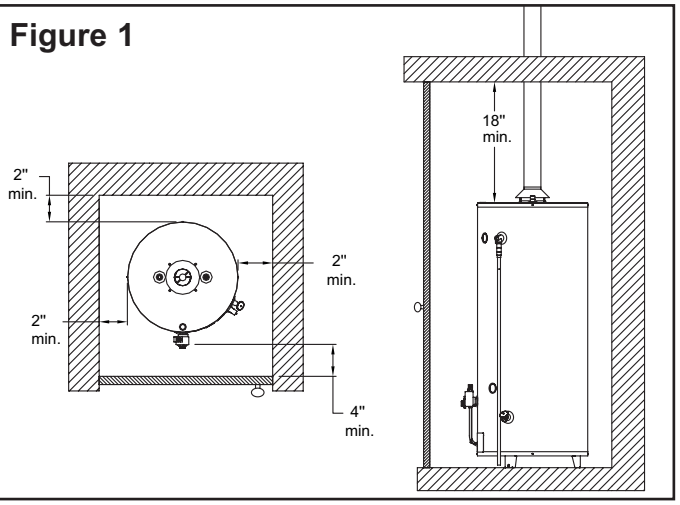
The minimum clearances from combustible material for this water heater are: Two (2) inches (5.1 cm) from the sides and rear, four (4) inches (10.2 cm) from the front, and eighteen (18) inches (45.7 cm) from the top **(see Figure 1)**.



Combustion and Ventilation Air Supply

In order for the water heater to operate properly, it must be supplied with an uninterrupted flow of clean combustion and ventilation air. The area around the water heater must always be kept clear and the combustion air intake holes at the bottom of the water heater must never be blocked. An inadequate supply of air to the water heater will produce a bright yellow burner flame causing sooting in the combustion chamber, on the burner, and in the flue tube. This can result in damage to the water heater and serious bodily injury, if not corrected.

Figure 1



Combustion and ventilation air requirements are determined by where the water heater is to be located. Water heaters are installed in either open (unconfined) spaces or smaller (confined) spaces, such as closets or small rooms.

Requirements for Unconfined Spaces

An unconfined space is an area with at least fifty (50) ft^3/1,000 BTU (4.8 m^3/kW) of the total input rating for all gas appliances installed in that space. Water heaters installed in unconfined spaces do not usually require outdoor air to function properly. However, in buildings with tight construction (heavy insulation, vapour barriers, weather stripping, etc.), and particularly in modern buildings, additional fresh air may need to be provided. For instructions on obtaining additional air supply, see the requirements below for confined spaces.

Requirements for Confined Spaces

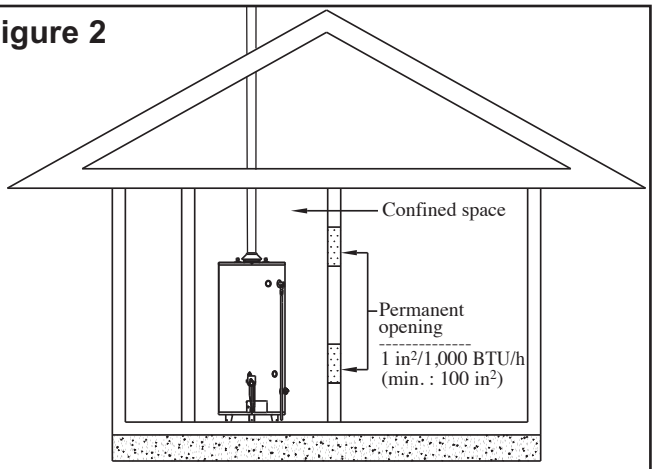
A confined space is an area where the volume is less then fifty (50) ft^3/1,000 BTU (4.8 m^3/kW) of the total input rating for all gas appliances installed in that space. Water heaters installed in confined spaces require additional combustion and ventilation air. This can be provided in two ways:

In Canada refer to CAN/CSA B149.1 and local codes for detailed information.

1) All Air From Inside the Non-airtight Structure **(see Figure 2)**. The enclosure in which the water heater is installed shall be provided with two permanent openings of one (1) in^2/1,000 BTU (22.0 cm^2/kW) of the total input of all appliances and shall communicate directly with one or more rooms of sufficient volume, so that the combined volume of all spaces meets the criteria for an unconfined space for all the appliances installed in that enclosure.

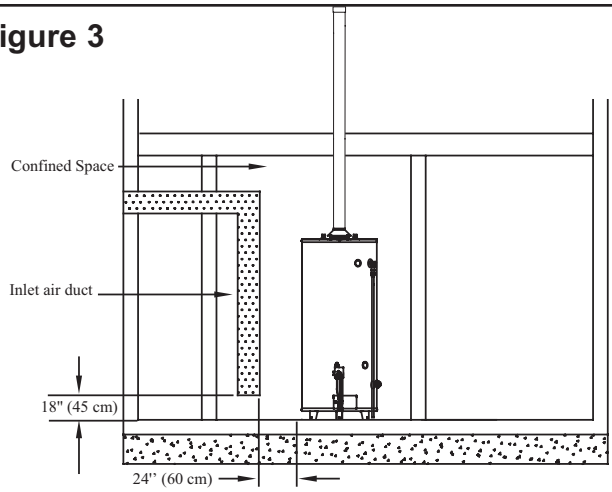
One opening shall be located not more than eighteen (18) inches (45.7 cm) or less than six (6) inches (15.2 cm) above the floor level. The second shall be located as near the ceiling as practical, but in no case lower than the drafthood.

Figure 2



2) All Air from Outdoors **(see Figure 3)**:
An air-supply shall be provided with one opening that communicates directly with the outdoors by means of a duct. This duct shall be sized according to CAN/CSA B149.1 and terminate within one (1) foot above, and within two (2) feet horizontally from the burner level of the appliance having the largest input.

Figure 3



In U.S.A. refer to ANSI Z223.1/NFPA 54 and local codes for detailed information

1) All Air From Inside the Building **(see Figure 2)**
The confined space shall be provided with two permanent openings communicating directly with one or more rooms of sufficient volume, so that the combined volume of all spaces meets the criteria for an unconfined space. The total input rating of all gas appliances installed in the combined space shall be considered in making this determination.

Each opening shall have a minimum free area of one (1) in^2/1,000 BTU (22.0 cm^2/kW) of the total input rating of all gas appliances in the confined space, but not less than 100 square inches (645 cm^2). One opening shall commence within

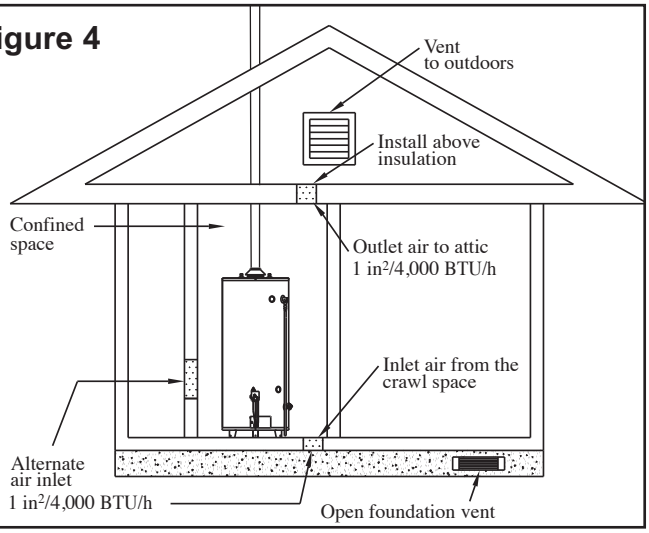
six (6) inches (15.2 cm) of the top and one within six (6) inches (15.2 cm) of the bottom of the enclosure.

2) All Air From Outdoors

The confined space shall be provided with two permanent openings, one commencing within six (6) inches (15.2 cm) of the top and one commencing within six (6) inches (15.2 cm) from the bottom of the enclosure. The openings shall communicate directly, or by ducts, with the outdoors or spaces (crawl or attic) that freely communicate with the outdoors.

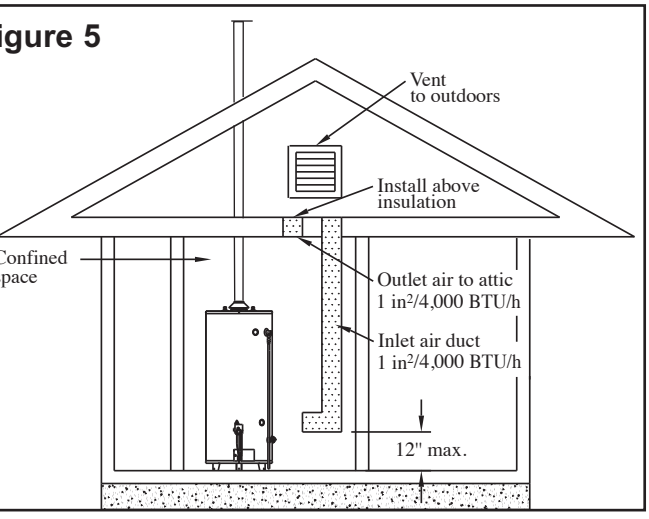
A) When communicating directly with the outdoors, each opening shall have a minimum free area of one (1) in^2/4,000 BTU (5.5 cm^2/kW) of the total input rating of all gas appliances in the enclosure **(see Figure 4)**.

Figure 4



B) When communicating with the outdoors through vertical ducts, each opening shall have a minimum free area of one (1) in^2/4,000 BTU (5.5 cm^2/kW) of the total input rating of all gas appliances in the enclosure **(see Figure 5)**.

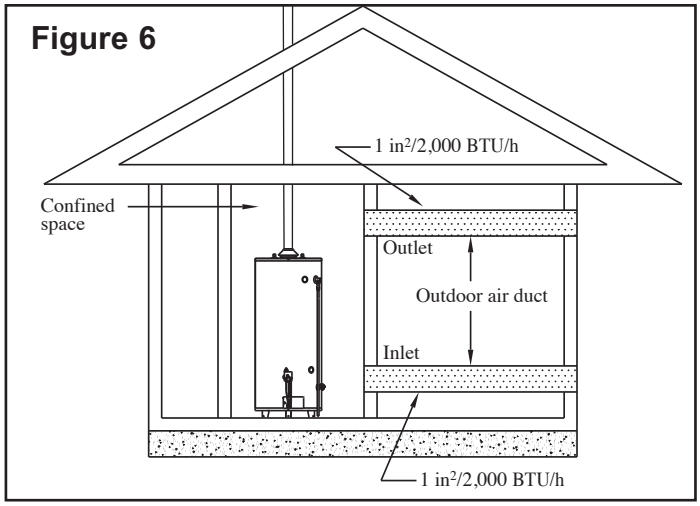
Figure 5



C) When communicating with the outdoors through horizontal ducts, each opening shall have a minimum free area of one (1) in^2/2,000 BTU (11 cm^2/kW) of the total input rating of all gas appliances in the enclosure **(see Figure 6)**.

When ducts are used, they shall be of the same cross-sectional area as the free area of the openings to which they connect. The minimum short side dimension of rectangular air ducts shall not be less than three (3) inches (7.62 cm).

Figure 6



Louvers and Grilles

In calculating free area for ventilation and combustion air supply openings, consideration must be given to the blocking effect of louvers, grills, or screens protecting the openings. Screens must not be smaller than 1/4 inch (6.4 mm) mesh. If the free area through a particular design of louver or grill is known, it should be used in calculating the size of opening required to provide the free area specified. If the design and free area is not known, it may be assumed that wood louvers and grills will allow 20-25% free area and metal louvers and grills will allow 60-75% free area. Louvers and grills must be installed in the open position or interconnected with the water heater so that they are opened automatically during water heater operation.

Corrosive Atmospheres

If this water heater is to be installed in a beauty shop, barber shop, photo processing lab, dry cleaning establishment, a building with an indoor pool, or near a chemical storage area, it is imperative that the combustion and ventilation air be drawn from outside these areas. These particular environments contain products such as aerosol sprays, detergents, bleaches, cleaning solvents, refrigerants, and other volatile compounds that, in addition to being highly flammable, become highly corrosive acid compounds when burned. Exposure to such compounds can be hazardous and lead to premature product failure. **Should the water heater fail due to exposure to such a corrosive atmosphere, the warranty is void.**

Venting

⚠ DANGER

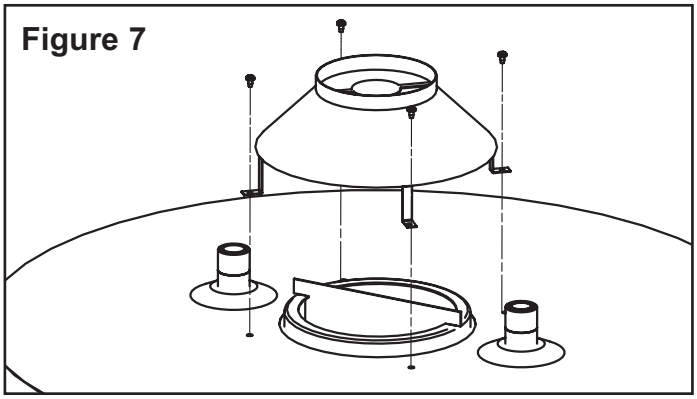
When installing the venting system, make sure to follow all local codes or, in the absence of local codes, CAN/CGA B149.1, Natural Gas and Propane Gas Installation Code, in Canada, and/or the National Fuel Gas Code, ANSI Z223.1/NFPA 54, in the United States. Never operate the water heater unless it is properly ventilated to the outdoors and has adequate air supply for proper operation. Failure to properly install the venting system could result in property damage, personal injury, or death.

Drafthood

The water heater must be vented using the drafthood provided by the manufacturer. Before installing the drafthood, check to make sure that the flue baffle has been installed in the flue tube. If the flue baffle is not present, immediately contact the dealer where the water heater was purchased. Never operate the water heater without the flue baffle installed.

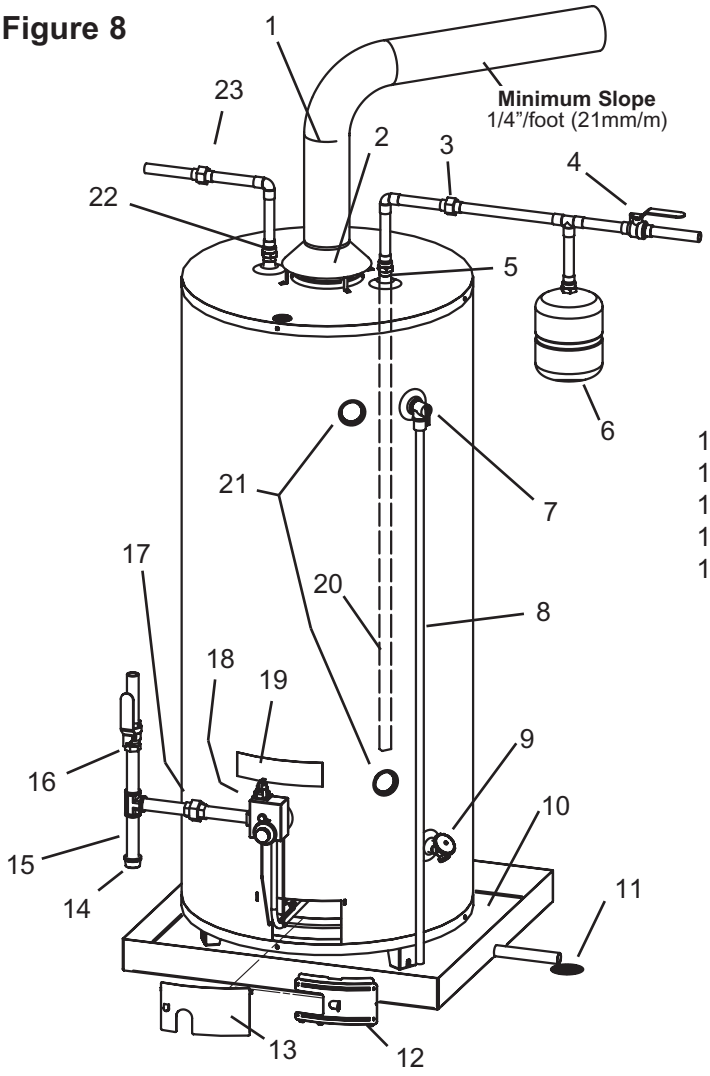
To install the drafthood, place it over the flue opening on the top of the water heater. Line up the holes

Figure 7



in the drafthood's legs with those provided in the water heater's top. Secure the drafthood to the water heater using the four (4) sheet metal screws provided **(see Figure 7)**. When installing the drafthood do not alter it in any way.

Figure 8



1) Vent pipe
2) Drafthood
3) Union
4) Cold water manual shut-off valve
5) Cold water inlet
6) Expansion tank
7) Temperature & pressure-relief valve
8) Overflow tube
9) Drain valve
10) Drain pan
11) Free-flowing floor drain
12) Inner access door
13) Outer access door
14) Cap
15) Drip leg (Sediment trap)
16) Gas supply manual shut-off valve
17) Union
18) Gas control valve
19) Rating plate
20) Dip tube
21) Side Tappings
22) Hot water outlet
23) Union

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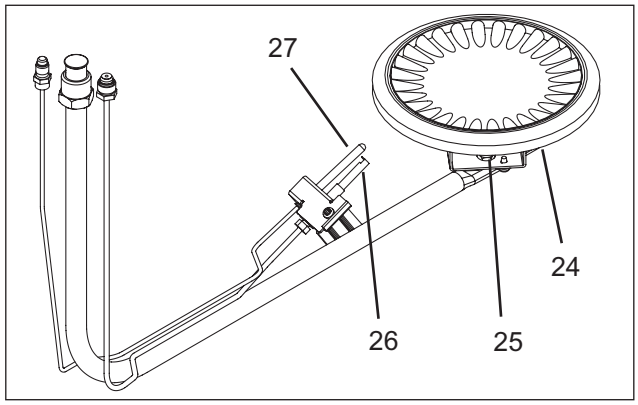
24) Burner
25) Main burner orifice
26) Pilot
27) Thermocouple



Venting System

The venting system must be attached to the drafthood to connect the water heater to the gas vent or chimney. The vent pipe connecting to the water heater must be of the same size as the drafthood. It is highly recommended to install this water heater on a separate venting system from other appliances. In some installations, proper venting may require the use of a larger diameter vent pipe and/or combined venting with other appliances. Consult the vent tables in CAN/CGA B149.1, Natural Gas and Propane Gas Installation Code, in Canada, and/or the National Fuel Gas Code, ANSI Z223.1/NFPA 54, in the United States to correctly size the vent pipe.

When connecting the vent pipe to the water heater the following instructions must be followed:

- Install the vent pipe in such a way as to avoid any unnecessary bends that could create resistance to the flow of combustion gases.
- The length of the horizontal vent pipe must not exceed 75% of its height.
- All horizontal runs must have a minimum rise of 1/4 inch per foot (21 mm/m) of run **(see Figure 8**).
- All joints must be securely fastened with sheet metal screws or other approved means.
- All single wall vent piping must maintain a minimum of six (6) inches (15.2 cm) of clearance from combustible materials.
- Venting systems made with single wall piping cannot pass through any attic, inside wall, crawl space, confined space, or any floor.
- The vent piping must be accessible for inspection, cleaning, and replacement.

⚠ WARNING

When the installation is complete, visually inspect the venting system to make sure that all joints are properly connected and all instructions have been followed. Failure to properly install the venting system could result in property damage, personal injury, or death.

Water Piping

Refer to **Figure 8** for a typical installation. Use of this layout should provide a trouble free installation for the life of the water heater. Before making the plumbing connections, locate the **COLD** water inlet and the **HOT** water outlet. These fittings are both 3/4” N.P.T. male thread. Make sure that the dip-tube is installed in the cold water inlet. Install a shut-off valve close to the water heater in the cold water line. It is recommended that unions be installed in the cold and hot water lines so that the water heater can be easily disconnected, if servicing is required.

When assembling the hot and cold piping, use a good food grade of pipe joint compound, and ensure all fittings are tight. It is imperative that open flame is not applied to the inlet and outlet fittings, as heat will damage or destroy the plastic lined fittings. **This will result in premature failure of the fittings, which is not covered by the warranty.**

Temperature and Pressure-Relief Valve

⚠ WARNING

DO NOT plug the temperature and pressure-relief valve or its discharge line. **DO NOT** remove the relief valve. Make sure the relief valve is properly sized for the water heater. If the relief valve continuously discharges water, call a qualified service technician to correct the problem. Failure to follow these instructions can result in property damage, personal injury, or death.

To protect from excessive pressure and/or temperature, the manufacturer has installed a temperature and pressure-relief valve that meets the requirements of the Standard for Relief Valves and Automatic Gas Shut-Off Devices for Hot Water Supply Systems, CSA 4.4 in Canada and ANSI Z21.22 in the United States. This relief valve has a maximum set pressure that does not exceed the hydrostatic working pressure of the water heater (150 psi = 1,035 kPa) and a BTU/h rating equal to or greater than the input rating, as shown on the water heater rating plate. It should never be plugged or removed from the opening marked for it on the water heater.

If this relief valve should need to be replaced, use only a new temperature and pressure-relief valve. Never install an old or existing relief valve as it may be damaged or inadequate for the working requirements of the new water heater. This new relief valve must meet all local codes or, at a minimum, the requirements listed above. Never install any other type of valve between the relief valve and the water heater.

A discharge line must be installed into the relief valve.

The discharge line:

- Must not be smaller than the outlet pipe size of the relief valve.
- Must not terminate less than six (6) inches (15.2 cm) and not more than twelve (12) inches (30.5 cm) above a floor drain.
- Must not be restricted in any way. Do not thread, cap, or in any way restrict the end of this outlet.
- Must be of a material capable of withstanding 210°F (99°C) without distortion.
- Must be installed to allow complete drainage of the relief valve and discharge line.
- Must terminate at an adequate free-flowing drain.

Pressure Build-up in a Water System

When the water heater operates, the heated water expands creating a pressure build-up. This is a natural function and is one of the reasons for installing a temperature and pressure-relief valve. If the cold water supply line has a built-in water meter, check valve, or pressure-reducing valve, a suitable expansion tank must be installed to prevent pressure build-up or water hammer effect, otherwise the warranty is void **(see Figure 8)**. An indication of pressure build-up is frequent discharges of water from the relief valve. If the relief valve discharges water on a continuous basis, it may indicate a malfunction of the relief valve, and a qualified service technician must be called to have the system checked, and the problem corrected.

Filling the Water Heater

⚠ WARNING

NEVER operate the water heater unless it is completely filled with water. **Failure to follow this instruction can result in premature failure of the water heater that is not covered by the warranty.**

Check that all of the water piping connections have been made. To fill the water heater:

1) Make sure that the water heater drain valve is closed by inserting a flat head screwdriver into the slot on the head of the drain valve and turning the knob clockwise ↷.
2) Open the cold water supply manual shut-off valve. This valve must remain open as long as the water heater is in use. **Never** operate the water heater with the cold water supply manual shut-off valve closed.
3) To make sure the water heater is completely full of water, open hot water faucets to let the air out of the water heater and plumbing system. Leave the faucets open until a constant flow of water is obtained.
4) Check all of the plumbing connections to make sure there are no leaks.

Gas Connections

⚠ WARNING

DO NOT attempt to use this water heater with any gas other than the type of gas shown on the water heater rating plate. Failure to follow this instruction can result in property damage, personal injury, or death.

The gas piping must be installed as indicated in **Figure 8**. For the correct size of piping for this water heater, consult CAN/CGA B149.1, Natural Gas and Propane Gas Installation Code, in Canada, and/or the National Fuel Gas Code, ANSI Z223.1/NFPA 54, in the United States. Only new piping with cleanly cut threads may be used, together with a suitable sealing compound that is approved for natural and propane gases. It is mandatory that a readily accessible manual shut-off valve be installed in the gas supply line. The gas supply manual shut-off valve must be close to the water heater. A drip leg (sediment trap) must be installed in the gas line ahead of the gas control valve to prevent dirt from entering it. A union must be installed between the gas control valve and the gas supply manual shut-off valve for easy maintenance of the water heater.

⚠ WARNING

NEVER use an open flame to test for gas leaks. A fire or explosion could occur resulting in property damage, personal injury, or death.

The water heater and its gas connection must be leak tested before placing the appliance into operation. To leak test the system:

1) Turn on the manual gas shut-off valve near the water heater.
2) Use a soapy water solution to test all connections and fittings for leaks. Bubbles indicate a gas leak.
3) Correct all leaks.

Make sure that the inlet pressure to the water heater does not exceed 1/2 psi (3.5 kPa) for both natural and propane gases. Pressures in excess of 1/2 psi (3.5 kPa) can damage the gas control valve, resulting in a fire or explosion from leaking gas. For purposes of adjustment, the minimum inlet pressure is indicated on the water heater rating plate.

If any pressure testing of the gas line is undertaken at test pressures in excess of 1/2 psi (3.5 kPa), the water heater and its gas supply manual shut-off valve must be disconnected from the gas supply piping system, and the end of the pipe sealed with a female cap. If the testing is to be undertaken at a test pressure less than 1/2 psi (3.5 kPa), the gas supply manual shut-off valve must be closed.

⚠ WARNING

A high altitude orifice **MUST BE** installed for water heaters operating above 2,000 feet (610 m) Failure to follow this instruction can result in property damage personal injury, or death.

Installation Instructions for Water Heaters Approved for Combination Space Heating & Potable Water Heating (see Figure 9)

A water heater cannot be used for space heating application only. When using a water heater for combination space and potable water heating, the instructions provided in this manual and with the air-handling unit must be respected and, **in particular** the following:

1) All piping and components that are used in the system must be of a nonferrous type suitable for potable water. This also applies to any sealant used.

2) When used as a dual purpose water heater, it must not be connected to any system that has been previously used for non potable water heating. This includes any piping because, in all probability, existing piping would have been, in the past, treated with chemicals for cleaning or sealing the system.

3) If this water heater is to be used for space heating, make sure that all safety codes are respected. Pay special attention to safety valve pressure and expansion tanks.

4) Do not use toxic chemicals to clean the potable water heating system.

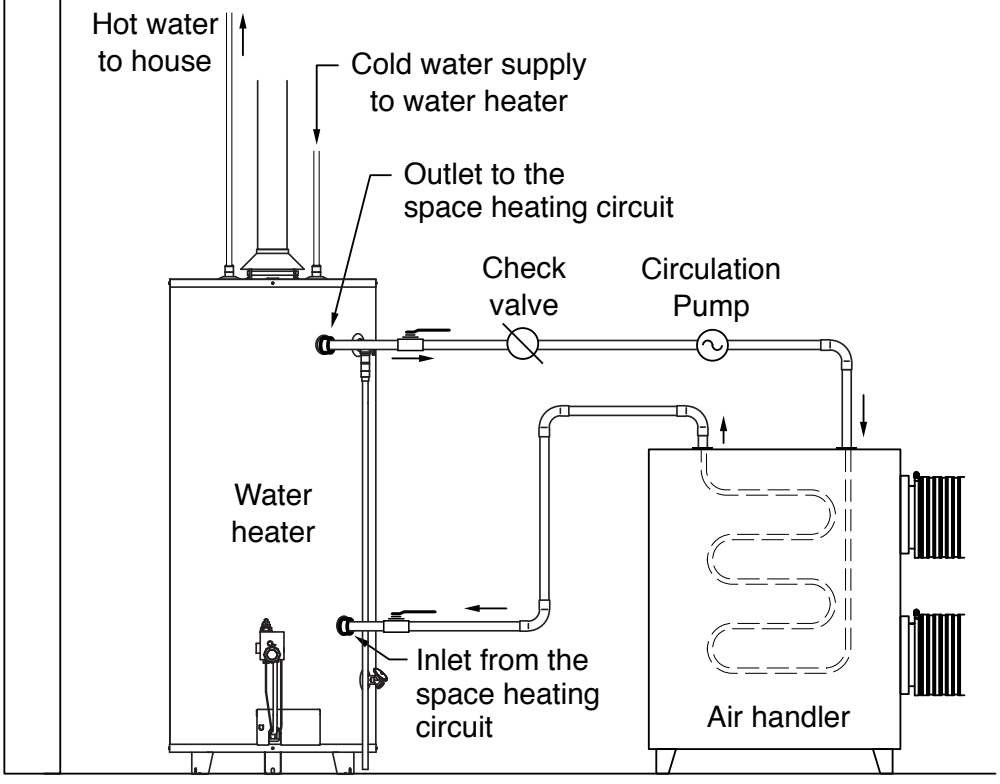
5) Where water temperature in excess of 140°F (60°C) is required for a space heating application, a mixing valve must be installed in the potable side of the system. This will temper the water, and reduce the risk of scalding.

6) If the incoming water line to the heater is equipped with a check valve, water meter, or pressure-reducing valve, an expansion tank must be installed in the system. This will prevent weeping from the water heater relief valve and premature failure of the heater due to expansion of the water during the heating cycle.

7) Before acquisition of a water heater for space heating application, it is necessary to have the area of intended use sized by a qualified technician. This will ensure that an adequate water heating capacity will be available for both heating and potable water supply, and that the application will meet all local codes and public utility requirements.

Note: It is good practice to oversize the water heater, to ensure that all of the potential hot water requirements are available.

Figure 9



Installation Checklist

Location

- Is the water heater located close to the chimney and the main use of hot water? ☐
- Is the water heater protected from freezing temperatures? ☐
- Has a drain pan been installed and piped to a free-flowing drain? ☐
- Is the gas control valve accessible for servicing? ☐
- Have clearances from combustible materials been observed? ☐

Combustion and Ventilation Air Supply

- Is the area around the water heater clean and properly ventilated? ☐
- Is the fresh air supply free of corrosive elements and flammable vapours? ☐
- Does the water heater have access to enough fresh combustion air? ☐
- Have the fresh air openings been sized correctly and has consideration been given to the blocking effect of louvers and grilles? ☐

Venting

- Is the flue baffle installed in the flue tube? ☐
- Has the water heater been vented seperately from all other appliances? ☐
- Has the manufacturer's supplied drafthood been installed correctly? ☐
- Is the vent piping made of an approved material and sized correctly? ☐
- Has the venting been installed with 1/4 inch rise per foot (21 mm/m) of horizontal run? ☐
- Has all the vent piping been secured with sheet metal screws? ☐

Water Piping

- Is the dip-tube installed in the cold water inlet? ☐
- Has a temperature and pressure-relief valve been installed? ☐
- Does this valve have a discharge line installed and is it piped to a free-flowing drain? ☐
- Have all the plumbing connections been properly installed and are they leak free? ☐
- Is the water heater full of water? ☐

Gas Connections

- Is the gas supplied to the water heater the same type as indicated on the water heater rating plate? ☐
- Has the gas line been installed with a manual shut-off valve, union, and drip leg? ☐
- Is the gas piping large enough and made of an approved material? ☐
- Have all connections been made with an approved joint compound? ☐
- Has the gas piping been tested for leaks with a soap and water solution? ☐

Lighting the Water Heater

Before lighting or re-lighting your water heater, make sure that you have read and understood all of the instructions and warnings in this manual and on your water heater. If you have any questions about lighting your water heater, immediately contact a qualified installer, service agency, or the gas supplier.

⚠ WARNING

DO NOT light this water heater if:

- It is not full of water.
- The gas supplied does not match the type listed on the rating plate.
- Gasoline or other flammable vapours and liquids have been stored in the vicinity of the water heater.

Failure to follow these instructions can result in property damage, personal injury, or death.

FOR YOUR SAFETY, READ BEFORE LIGHTING

WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or death.

A. This appliance has a pilot which must be lit by hand. When lighting the pilot, follow these instructions exactly.

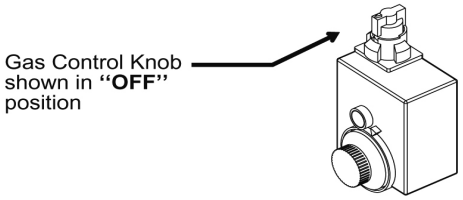
B. BEFORE LIGHTING, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
WHAT TO DO IF YOU SMELL GAS:
- DO NOT try to light any appliance.
- DO NOT touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from neighbour'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 push in or turn the gas control knob. Never use tools. If the knob will not push in or 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.

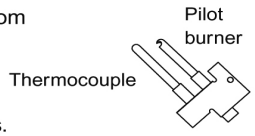
LIGHTING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Rotate the thermostat dial clockwise ↷ to the **''PILOT LIGHTING''** position.
3. Rotate and partially depress gas control knob clockwise ↷ to **''OFF''** position.



Note: The gas control knob cannot be turned from **''PILOT''** to **''OFF''** unless knob is depressed slightly. Do not force.

4. 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 the next step.
5. Remove the two (2) access doors at the bottom of the heater located under the gas control.
6. Find pilot – Follow metal tube from gas control. The pilot is on the small bracket attached to the metal tube behind the two (2) access doors.



7. Turn the gas control knob counterclockwise ↶ to **''PILOT''** position.
8. Push the gas control knob in all the way and hold.
Immediately light the pilot with a match.
Continue to hold the gas control knob in for about one (1) minute after the pilot is lit. Release knob and it will pop back up. Pilot should remain lit. If it goes out, repeat steps 3 through 8.
   - If the knob does not pop up when you release it, stop and immediately call your service technician or gas supplier.
   - If the pilot will not stay lit after several attempts, turn the gas control knob to **''OFF''** and call your service technician or gas supplier.
9. Replace the two (2) pilot access panels.
10. Turn the gas control knob counterclockwise ↶ to **''ON''** position.
11. Set the thermostat to the desired setting.

TO TURN OFF GAS TO APPLIANCE

1. Rotate the thermostat dial clockwise ↷ to the **''PILOT LIGHTING''** position.
2. Rotate and partially depress gas control knob clockwise ↷ to **''OFF''** position.

Drafthood Operation

It is important to check that the ventilation system is working properly once the water heater main burner has been lit. Wait ten (10) minutes after lighting the burner. Then introduce a match or candle around the opening of the drafthood. If the flame is drawn towards the opening, this indicates proper ventilation. If the flame flutters or is blown out, combustion gases are escaping from the drafthood opening. If this occurs, shut the water heater off immediately and locate the problem. **Do not try and operate the water heater again until you are satisfied that the problem has been corrected.**

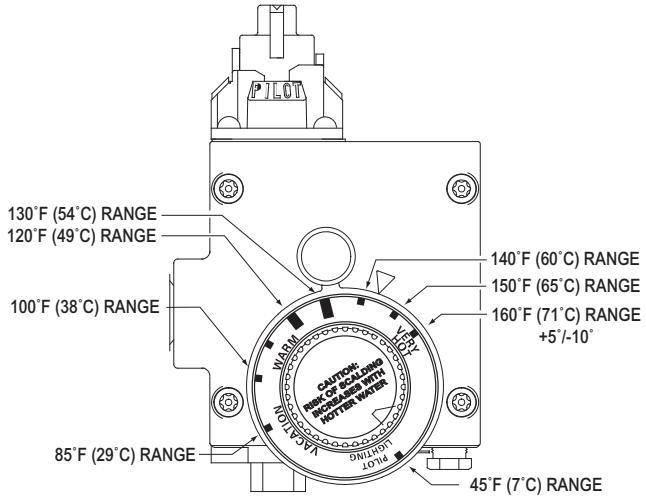
Water Temperature Regulation

WARNING

The higher the setting, the greater the risk of scalding. Hot water can cause third degree burns in one (1) second at 160˚F (71˚C), in six (6) seconds at 140˚F (60˚C), and in thirty (30) seconds at 130˚F (54˚C). In households where there are children, physically challenged individuals, or elderly persons, mixing valves for point of use are necessary as means of reducing the scalding potential of hot water.

The gas control valve is factory-adjusted to its lowest temperature. The desired water temperature can be selected by rotating the temperature dial on the front of the gas control valve. Turn the temperature dial clockwise ↷ to decrease the temperature, or counterclockwise ↶ to increase the temperature. The reference mark on the temperature dial, indicated by a large rectangle, represents 130˚F (54˚C) **(see Figure 10)**. Each mark to the left and right of this reference mark indicates a temperature change of approximately 10˚F (6˚C).

Figure 10



When hot water is drawn from the tank in frequent short bursts, a condition known as “Stacking” is created. “Stacking” is the result of increased cycling of the burner and can produce very hot water temperatures at the hot water outlet. Always remember to check the hot water coming out of any faucet with your hand before use. This will reduce the risk of scalding-related injury.

The gas control valve is equipped with an energy cut-off (E.C.O.). Should the temperature of the water exceed 210˚F (99˚C), the E.C.O. will shut off the gas to the water heater. If the E.C.O. has tripped, the gas control valve must be replaced by a qualified service technician.

WARNING

Should overheating occur or the gas supply fail to shut off, close the gas supply manual shut-off valve. Failure to follow this instruction can result in property damage, personal injury, or death.

Out of Fuel

If your water heater should run out of gas, proceed as follows:

1) Close the gas supply manual shut-off valve.

2) Depress slightly and turn the gas control knob clockwise ↷ to the **“OFF”** position.

3) Once the gas supply has been re-established, proceed to the ***Lighting Instructions***.

Housekeeping

⚠ WARNING

DO NOT store or use gasoline or other flammable vapours and liquids around the water heater.
DO NOT block or, in any way, restrict the flow of fresh combustion air to the water heater.
DO NOT put or store any objects on the top of the water heater.
Failure to follow these instructions can result in property damage, personal injury, or death.

Keep the area around the water heater clean and free of dust, lint, and dirt. Make sure that all of the minimum clearances to combustible materials are being maintained.

Condensation
As moisture from the products of combustion comes into contact with the cold surface of the inner tank, it may condense. This situation will usually occur:

1) When the water heater is filled with cold water for the first time.

2) If the water heater has been undersized.

3) When large amounts of hot water are drawn from the water heater in a short period of time and the refill water is very cold.

Due to the high-efficiency rating of this gas-fired water heater, it may produce more condensation than older models. Condensation forming on the flue tube will drop on the burner making a “sizzling” sound. In extreme cases, the condensate may even extinguish the pilot flame. This condition is not uncommon and must never be misinterpreted as a leaking tank. It will disappear once the water becomes heated.

Because of the large amounts of water that can condense, it is very important that a drain pan be installed under the water heater **(refer to Figure 7)**. **Under no circumstances is the manufacturer to be held liable for any water damage, in connection with this water heater.** If the problem does not go away and water continues to drip after the water heater has heated up, check all of the plumbing connections to make sure they are not leaking.

Main Burner & Pilot
Every three (3) months, check the main burner and pilot flame. You can access the combustion chamber by removing the inner and outer doors on the water heater. A soft blue flame indicates proper gas combustion. A yellow tipped flame indicates poor combustion. With a vacuum cleaner, remove any dust, lint, and dirt accumulation in or around the combustion chamber.

Water Heater Tank
Drain a pail of water through the drain valve at least once a year. This will remove excess sediment from the bottom of the tank. This sediment, if allowed to accumulate, will reduce the efficiency and the life of the tank.

Temperature and Pressure-Relief Valve
Manually operate the temperature and pressure-relief valve at least once a year, standing clear of the outlet to avoid being burned. Lift and release the operating lever on the valve to make it operate freely. If, after manually operating the valve, it fails to completely reset itself and continues to discharge water, replace it with a new one.

Venting System Inspection
The venting system must be thoroughly inspected once a year. Check the area where the water heater is located to make sure that there is enough clean combustion and ventilation air. Remove any possible obstructions that would prevent proper air circulation and venting. Check the venting system to make sure that all of the connections are securely fastened, and that all of the joints are properly sealed. If any part of the venting system is damaged, it must be replaced by a qualified service technician. Test the ventilation system to make sure that it is venting properly **(refer to *Drafthood Operation*)**.

Anode
This water heater is equipped with dual anode rods that are designed to prolong the life of the glass-lined tank. The anode rods are slowly consumed, protecting the glass-lined tank from corrosion. The anode rods should be inspected every two (2) years. If more than half of either rod has been consumed, it should be replaced. Instructions on how to change the anode rod can be obtained from the manufacturer.

The life expectancy of the water heater is reduced where a water softener is introduced to fight hard water. The sodium salts added by a softener make the water extremely conductive, therefore, the anode rods are consumed more rapidly. Under these conditions, the anode rods should be inspected every year.

In certain water conditions, the anode rods will react with the water, producing discoloured or smelly water. The most common complaint is hot water that smells like rotten eggs. This phenomenon is the result of the reaction between the anode rods and hydrogen sulfide gas dissolved in the water which occurs frequently in well systems. This problem can usually be eliminated or reduced by changing the anode rods to a type more suitable for these conditions (aluminum anode rod) and by chlorinating the water heater and plumbing system. If the problem persists, special filtration equipment may be required. Under no circumstances are the anode rods to be removed from the water heater on a permanent basis. **Removal of the anode rods will lead to premature failure of the water heater and void the warranty**.

⚠ WARNING

Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally two (2) weeks or more). **HYDROGEN GAS IS EXTREMELY FLAMMABLE**. It is highly recommended to open the hot water faucet in the kitchen for several minutes before you use any electrical appliances connected to the hot water system, such as a dishwasher or washing machine. If hydrogen gas is present, there will be an unusual sound, such as air escaping through the pipe, as the hot water faucet is opened. **DO NOT** smoke or introduce an open flame near the faucet when it is opened.

Draining the Water Heater
To completely drain the water heater:

1) Turn the temperature dial clockwise ↷ to the **"Pilot Lighting"** position.
2) Depress slightly and turn the gas control knob clockwise ↷ to the **"OFF"** position.
3) Shut off the gas supply to the water heater by closing the manual shut-off valve.
4) Close the cold water supply to the water heater by closing the cold water supply valve.
5) Connect one end of a garden hose to the water heater drain valve and put the other next to a free-flowing drain.
6) Open the drain valve by inserting a flat head screwdriver into the slot on the head of the drain valve and turning the knob counterclockwise ↶.
7) Open a hot water faucet to allow air into the system.

Vacation
If you are planning a vacation or other prolonged absence, it is highly recommended to shut off the gas supply and the cold water supply to the water heater. This will save energy, protect against property damage in the event the water heater leaks, and prevent the build-up of hydrogen gas. If the water heater and piping are exposed to freezing temperatures, they should both be drained.

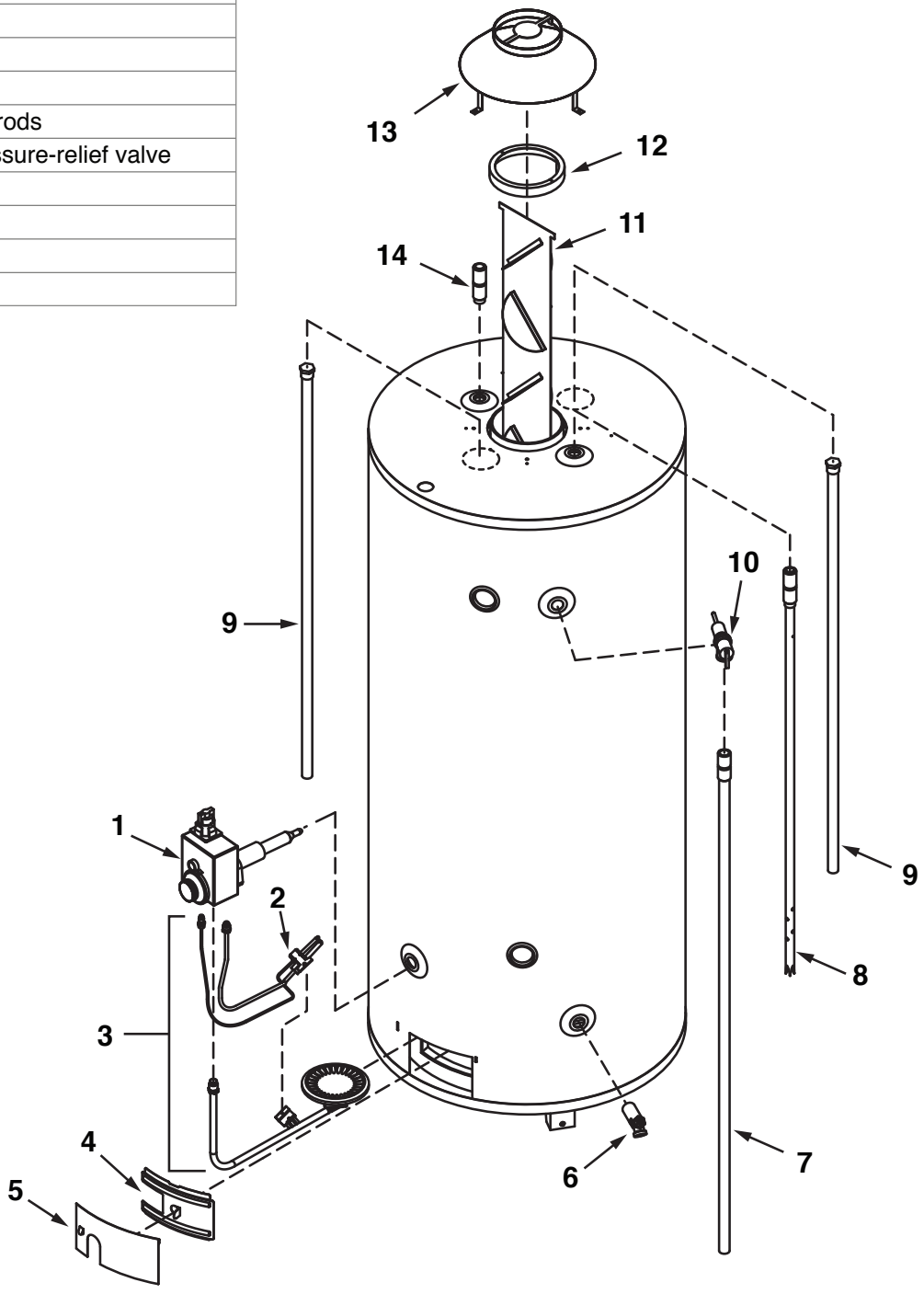
Remember to check the water heater thoroughly after it has been shut off for an extended period of time before putting it back in operation. Make sure that the water heater is completely full of water and that the cold water supply manual shut-off valve is open before lighting the burner.

Getting Service for your Water Heater
If you are having problems with your water heater, follow these three easy steps:

1) Consult the **Troubleshooting Guide** contained in this manual **(see Page 16)**. It lists the most common problems experienced with your gas-fired water heater. The solutions you find listed may provide a quick and simple solution to your problem and save you time and money.
2) If the solution listed in the troubleshooting guide does not solve the problem or if your particular problem is not listed in the guide, contact the installer of the water heater, or the local gas utility.
3) If you still cannot solve the problem, contact the manufacturer's Customer Service Department by e-mail at **service@giantinc.com** or by telephone at 1-800-363-9354. To help serve you in a quick and efficient manner, **always have the following information ready**:

   a) Model number.
   b) Serial number.
   c) Date of installation.
   d) Where the water heater was purchased.
   e) Complete address where the water heater is installed.
   f) A description of the problem.

ID No.	Description
1	Gas control valve
2	Pilot/thermocouple assembly
3	Complete burner assembly
4	Inner access door
5	Outer access door
6	Drain valve
7	Overflow tube
8	Dip-tube
9	Magnesium anode rods
10	Temperature & pressure-relief valve
11	Flue baffle
12	Flue reducer
13	Drafthood
14	Outlet nipple



TROUBLESHOOTING GUIDE

CONDITION	CAUSE	REMEDY
The burner will not ignite.	No gas.	Check with gas utility company.
	Dirt in gas line.	Notify utility. Install drip leg in gas line.
	Pilot line clogged.	Clean. Check for source of trouble and correct.
	Main burner line clogged.	Clean. Check for source of trouble and correct.
	Defective thermocouple.	Replace with new thermocouple.
	Defective gas control valve.	Replace with new gas control valve.
	Gas control valve set too low.	Turn temperature dial to desired temperature.
	Heater installed in a confined area.	Provide fresh air ventilation.
The burner flame floats and lifts off ports.	High gas pressure.	Check with gas utility company.
	Orifice too large.	Replace with correct orifice.
	Flue clogged.	Clean. Check for source of trouble and correct.
	Heater installed in a confined area.	Provide fresh air ventilation.
	Cold drafts (downdraft).	Locate source and correct.
The burner flame is yellow and lazy.	Insufficient secondary air.	Provide fresh air ventilation.
	Flue clogged.	Clean. Check for source of trouble and correct.
	Main burner line clogged.	Clean. Check for source of trouble and correct.
	Heater installed in a confined area.	Provide fresh air ventilation.
The burner flame is too high.	Insufficient secondary air.	Provide fresh air ventilation.
	Orifice too large.	Replace with correct orifice.
	Defective gas control valve.	Replace with new gas control valve.
The flame burns at the orifice.	Low gas pressure.	Check with gas utility company.
	Defective gas control valve.	Replace with new gas control valve.
The pilot will not light or remain lit.	No gas.	Check with gas utility company.
	Dirt in gas line.	Notify utility. Install dirt leg in gas line.
	Pilot line clogged.	Clean. Check for source of trouble and correct.
	Loose thermocouple connection.	Tighten with fingers then take 1/4 turn with wrench.
	Defective thermocouple.	Replace with new thermocouple.
	Cold drafts (downdraft).	Check source and correct.
	Gas control valve high limit switch has tripped.	Replace with new gas control valve.
High operating costs.	Gas control valve set too high.	Turn temperature dial to desired temperature.
	Sediment or lime in tank.	Drain. Check to see if water treatment is necessary.
	Water heater is undersized.	Install size of water heater that meets demand.
	Wrong piping connections.	Correct piping, dip tube must be in cold inlet.
	Leaking faucets.	Repair faucets.
	Gas leaks.	Check with gas utility company. Repair at once.
	Wasted hot water.	Advise consumer.
	Long runs or exposed piping.	Insulate piping.
	Hot water piping on outside wall.	Insulate piping.
Tripping high limit switch.	Excessive dirt, dust or other debris accumulation on the flame arrestor and on the blower impeller.	Clean the flame arretor in the combustion chamber using a stiff brush, compressed air and/or a vaccuum cleaner. In no circumstances, the blower assembly should be removed for cleaning before contacting the manufacturer.
Insufficient hot water.	Low gas pressure.	Check with gas utility company.
	Wrong piping connections.	Correct piping, dip tube must be in cold inlet.
	Sediment or lime in tank.	Drain. Check to see if water treatment is necessary.
	Water heater is undersized.	Install the size of water heater that meets the demand.
	Gas control valve set too low.	Turn temperature knob to desired temperature.
	Leaking faucets.	Repair faucets.
	Wasted hot water.	Advise consumer.
	Long runs or exposed piping.	Insulate piping.
	Hot water piping on outside wall.	Insulate piping.

TROUBLESHOOTING GUIDE

CONDITION	CAUSE	REMEDY
Slow hot water recovery.	Insufficient secondary air.	Provide fresh air ventilation.
	Low gas pressure.	Check with gas utility company.
	Gas control valve set too low.	Turn temperature dial to desired temperature.
	Improper calibration.	Replace gas control valve.
	Flue clogged.	Clean. Check for source of trouble and correct.
	Water heater is undersized.	Install size of water heater that meets demand.
	Wrong piping connection.	Correct piping, dip tube must be in cold inlet.
	Wasted hot water.	Advise consumer.
Leaking water.	Poorly sealed, hot or cold water connections, gas control valve threads, relief valve, or drain valve.	Tighten threaded connections.
	Leakage from plumbing system or other appliances.	Inspect plumbing system and other appliances.
	Condensation.	Refer to ***Condensation***.
Water drips from the relief valve.	Heater stacking.	Lower gas control valve setting.
	Excessive water pressure.	Install a pressure-reducing valve.
	Thermal expansion in a closed water system.	Install an expansion tank.
	Improperly seated valve.	Check relief valve works properly and replace if necessary.
The gas control valve fails to shut-off.	Defective gas control valve.	Replace with new gas control valve.
	Improper calibration.	Replace gas control valve.
Condensation.	Water heater filled for first time.	Let water heater warm up. Problem should go away. If it persists, check all plumbing connections for leaks.
	Heavy draws of hot water with very cold refill water.	Let water heater warm up. Problem should go away. If it persists, check all plumbing connections for leaks.
	Water heater is undersized.	Install size of water heater that meets demand.
Combustion odours.	Insufficient secondary air.	Provide fresh air ventilation.
	Heater installed in a confined area.	Provide fresh air ventilation.
	Flue clogged.	Clean. Check for source of trouble and correct.
Smoking and carbon formation (sooting).	Insufficient secondary air.	Provide fresh air ventilation.
	Low gas pressure.	Check with gas utility company.
	Burner flame yellow, lazy.	Refer to ***The burner flame is yellow and lazy***.
	Flue clogged.	Clean. Check for source of trouble and correct.
	Defective gas control valve.	Replace with new gas control valve.
	Heater installed in a confined area.	Provide fresh air ventilation.
The pilot flame is too small.	Low gas pressure.	Check with utility.
	Pilot line or orifice clogged.	Clean. Check for source of trouble and correct.
Smelly water.	High sulfate or mineral content in water.	Change magnesium anode to an aluminum anode and bleach tank.

STANDARD BASIC LIMITED WARRANTY

ON LIGHT DUTY COMMERCIAL GAS WATER HEATERS

GENERAL

The manufacturer warrants that, subject to verification of a warranty claim within the warranty period as described below, it will take the necessary corrective action to either repair or replace a water heater or component part which is determined to be defective in material or workmanship subject to the terms and conditions outlined in this document. Further, any replacement water heater or component part supplied under warranty will carry only the unexpired portion of the original water heater's warranty. The number of replacement water heaters is limited to one (1) per original unit purchased. If due to some extremely unusual circumstance, a replacement water heater or component part is found by our inspection & testing department to be defective, another heater or component part will be supplied to fulfill the obligation of the warranty of the original heater.

THE INNER TANK

If the inner tank fails within SIX (6)* years after the date of the original installation, a replacement water heater will be provided to the party from whom the unit was originally purchased. If an exact replacement is not available, the manufacturer reserves the right to furnish a comparable model water heater. The warranty reply card must be completed and sent back to the manufacturer within forty-five (45) days of the installation date. If said warranty card is not returned, the date indicated on the model serial plate will prevail.

COMPONENT PARTS

If any component part is found to be defective within ONE (1) year from the date of original installation, provided said defective part is an in-house factory made piece or an original factory approved OEM piece, the manufacturer will furnish a replacement part after the receipt and testing of the part claimed to be defective.

THIS WARRANTY WILL NOT APPLY

1) To defects or malfunctions resulting from failure to properly install, operate, or maintain the unit in accordance with the printed instructions.
2) If the installation does not conform to CSA &/or ETL Standards as well as any applicable national or local building codes.
3) To any damage or failure caused by abuse, accident, fire, floods, freezing, or other acts of God.
4) To any damage or failure caused by operating the heater without an approved pressure & temperature relief valve having been installed.
5) To any damage or failure caused by operating the heater with an empty or partially empty inner tank or sediment build-up resulting in dry firing of the heating elements.
6) To any damage or failure caused by utilizing the heater in conjunction with any other energy saving device or other source(s) of energy not approved by the manufacturer; or for other than use with potable water without any additives such as salt, chlorine, or chemicals other than those added for the purpose of rendering the water fit to drink.
7) To any damage or failure caused by the removal of the anode &/or by not assuring that there is a working anode in the tank at all times. All anodes must be checked at least once every two years & replaced if necessary
8) To any damages or failure caused by having affixed to the heater any non-factory made or factory approved replacement part(s) such as elements, controls, dip-tubes, relief valves, etc...
9) To any damage caused by not having the water heater installed adjacent to a free flowing drain in the event of water leakage.
10) If the heater is operated at water temperatures exceeding the maximum setting of the operating &/or high limit control or the heater is not supplied with potable water, free to circulate at all times.
11) If the heater has experienced the effect of thermal expansion due to excessive pressure (exceeding 300PSI). The result of excessive pressure usually reverses the bottom of the inner tank and can occur with the addition of a pressure reducing valve &/or a check valve in the municipal water supply system in a single family dwelling.
12) If the heater is installed outside of Canada or the United States.

SERVICE LABOUR RESPONSIBILITY

This warranty does not cover any labour expense for service, removal, or re-installation of a replacement heater. All such expenses are your responsibility.

SHIPPING COSTS

If a water heater or component part is deemed to be replaced, the manufacturer will pay the transportation costs of the replacement unit to a convenient authorized distributor or retailer as selected by us. You must pay any local cartage including the cost of returning the replaced item to the authorized distributor or retailer from whom the replacement is coming from.

HOW TO MAKE A CLAIM

Any claim for warranty service should be made to your contractor, wholesaler, or retailer from whom the water heater was purchased. In turn, said contractor, wholesaler, or retailer will contact the manufacturer from whom they purchased the heater. If this procedure cannot be followed, contact any other local contractor, wholesaler, or retailer handling our water heaters. Also, for warranty information you may call the manufacturer's customer service department at (514) 645-8893 or 1-800-363-9354, ext. 240. We suggest that prior to calling the factory, that you make sure to have the model number & serial number that is to be found on the outside casing of the heater. Proof of purchase showing the date, name, and place of the business from whom the water heater was purchased is essential to settle any warranty claim dispute over the length of the period of installation.

If an exact replacement is not available, a current model water heater or component part with comparable operating features will be provided by the manufacturer. If government regulations or industry standards require the replacement model water heater or component part to have features not found on the defective model water heater or component part, you will be charged the difference in price associated with these required features. If you pay the difference in price for these required features, you will receive a complete new Standard Basic Limited Warranty for the replacement water heater.

MISCELLANEOUS

No one is authorized to make any other warranties on the manufacturer's behalf. Any implied warranties of any nature offered by a third party other than what is stated in this Standard Basic Limited Warranty will not be honoured. No claims for incidental or consequential damages (including damages from leakage) will be accepted. If you do not return the warranty card, a proof of purchase showing the name, date, and location of the original source of purchase is a necessity to process a warranty claim. Failure to produce this documentation will result in the lesser or the warranty periods being offered. In order to avoid any confusion &/or disputes, we suggest that the warranty card be completed and mailed back no later than forty-five (45) days after installation.

EXTENDED WARRANTIES

For information on some premium quality residential gas & electric water heaters, contact your local licensed plumber, or look for them at selected retailers.

*SIX (6) years for residential usage, THREE (3) years for light duty commercial usage and ONE (1) year for commercial usage.