HYBRID TANK-TANKLESS WATER HEATER (AUTOMATIC CIRCULATING TANK) OWNER'S MANUAL INSTALLATION AND OPERATING INSTRUCTIONS



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 vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS:

- DO NOT try to light any appliance.
- DO NOT touch any electrical switch.
- DO NOT use any phone in your building.
- From a neighbor'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 ALL OF THE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR OPERATING THIS WATER HEATER. THIS MANUAL PROVIDES INFORMATION ON THE INSTALLATION, OPERATION, AND MAINTENANCE OF THE WATER HEATER. FOR PROPER OPERATION AND SAFETY IT IS IMPORTANT TO FOLLOW THE INSTRUCTIONS AND ADHERE TO THE SAFETY PRECAUTIONS. A LICENSED PROFESSIONAL MUST INSTALL THE WATER HEATER ACCORDING TO THE EXACT INSTRUCTIONS. THE CONSUMER MUST READ THE ENTIRE MANUAL TO PROPERLY OPERATE THE WATER HEATER AND TO HAVE REGULAR MAINTENANCE PERFORMED.

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

wodel #

Serial #







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NOTE : Giant sometimes shares customer contact information with businesses that we believe provide products or services that may be useful to you. By providing this information, you agree that we can share your contact information for this purpose. If you prefer not to have your information shared with these businesses, please contact customer service and ask not to have your information shared. However, we will continue to contact you with information relevant to the product(s) you registered and/or you account with us. If you have any questions or feel that the manual is incomplete, contact Giant at 1-800-363-9354.

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.				
A WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.			
	Indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.			
	Indicates a potentially hazardous situation which, if not avoided, could result in minor or mod- erate injury. It may also be used to alert against unsafe practices.			

SAFETY BEHAVIORS

WARNING

- Before operating, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- •Keep the area around the appliance clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
- Combustible construction refers to adjacent walls and ceiling and should not be confused with combustible or flammable products and materials.
- Combustible and/or flammable products and materials should never be stored in the vicinity of this or any gas appliance.
- Always check the water temperature before entering a shower or bath.
- 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 adjacent to the water heater.
 - * Turn off the incoming water supply. This can be done at the cold water supply valve immediately below the water heater or by turning off the water supply to the building.

- 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, do not try to repair it; call a licensed professional. Force or attempted repair may result in a fire or explosion.
- Do not use this appliance if any part has been under water. Immediately call a licensed professional to inspect the appliance and to replace any part of the control system and any gas control which has been under water.
- Do not use substitute parts that are not authorized for this appliance.
- Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
- Do not adjust the DIP switch unless specifically instructed to do so.
- Do not use an extension cord or an adapter plug with this appliance.
- Any alteration to the appliance or its controls can be dangerous and will void the warranty.
- Make sure the water heater and its water lines are protected from freezing. Damage due to freezing is not covered by the warranty.

▲ CAUTION

- •BURN HAZARD. Hot exhaust and vent may cause serious burns. Keep away from water heater unit. Keep children and animals away from unit.
- Hot water outlet pipes leaving the unit can be hot to touch. In residential applications, insulation must be used for hot water pipes below thirty-six (36) inches (91.4 cm) due to burn risk to children.

California law requires this notice to be provided:

California Proposition 65 lists chemical substances known to the state to cause cancer, birth defects, death, serious illness or other reproductive harm. This product may contain such substances, be their origin from fuel combustion (gas, oil) or components of the product itself.



Hot water can be dangerous, especially for infants or children, seniors, or disabled people. There is hot water scald potential if the thermostat is set too high.

Water temperatures over 125°F (51°C) can cause severe burns or scalding resulting in death.

Hot water can cause first degree burns with exposure for as little as: Three (3) seconds at 140°F (60°C) Twenty (20) seconds at 130°F (54°C) Eight (8) minutes at 120°F (48°C) Test the temperature of the water before placing a child in the bath or shower.

WARNING

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

SAFETY BEHAVIORS



FIRE AND EXPLOSION HAZARD Can result in serious injury or death

▲ Do not store or use gasoline or other flammable vapours and liquids in the vicinity of this or any other appliance. Storage or use of gasoline or other flammable vapours or liquids in the vicinity of this or any other appliance can result in serious injury or death.

WARNING

- 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.
- Any alteration to the appliance or its controls can be dangerous and will void the warranty.
- This appliance is equipped with a three-prong plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the ground prong from this plug.

FVIR (Flammable Vapor Ignition Resistant) Sensor

Flammable liquids such as cleaning solvents, aerosols, paint thinners, adhesives, gasoline, and propane must be handled and stored with extreme care. These flammable liquids emit flammable vapors and when exposed to an ignition source can result in a fire hazard or explosion. Flammable liquids should not be used or stored in the vicinity of this or any other appliance.

This water heater is equipped with a flammable vapor sensor and meets the requirements of ANSI Z21.10.1. If flammable vapors are detected, the flammable vapor sensor will close the gas supply to the water heater, the ignition source will be disabled and a "FE" error code will flash on the controller. If the controller is flashing a "FE" or if flammable vapors are suspected:

- Leave the area immediately, while leaving the exit point open to allow ventilation
- Do not touch any electric device (including phone or light switch)
- Call emergency personnel from a neighbor's phone
- Do not try to reset the water heater or light the pilot to any other appliance. When safety personnel has identified the area as safe and all flammable vapors have been removed and eliminated from the area, the units can be reset by unplugging the unit then plugging back in.

A WARNING

Do not spray or use chemicals containing bleach, cleaners, polish, silicone, phosphorous, or lubricants near the water heater. These chemicals will damage the flammable vapor sensor. Never clean or tamper with the flammable vapor sensor. Do not place cat litter near the appliance as it can corrode or damage the sensor. If the sensor is corroded or damaged, its reaction time can be affected and it may not react as described.

WARNING



Carbon Monoxide Hazard

- Install vent system per local and national codes.
- Read and follow all instructions in this section.
- DO NOT install this water heater above 5,400 ft (1,646 m).
- DO NOT obstruct water heater air intake.
- **DO NOT** operate water heater if flood damaged.
- Failure to properly vent this appliance can result in property damage, personal injury, or death.
- Every home should have a carbon monoxide (CO) alarm in the hallway near bedrooms in each sleeping area. Check batteries monthly and replace them annually.

Installer Qualifications

A licensed professional must install the appliance, inspect it, and leak test it before use. The warranty will be voided in case of improper installation.

The installer should have skills such as:

- •Gas sizing
- · Connecting gas lines, water lines, valves, and electricity
- Knowledge of applicable national, state, and local codes
- · Installing venting through a wall or roof
- Venting Category I, Fan Assist Appliances per NFPA54 and local codes
- If you lack these skills, contact a licensed professional.

General Instructions

<u>DO NOT</u>

- Do not install the UG40-92TFTT-N2U or UG40-92TFTT-P2U outdoors.
- Do not install the appliance in an area where water leakage of the unit or connections will result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the appliance. The pan must not restrict combustion air flow.
- Do not obstruct the flow of combustion and ventilation air.
- Do not use this appliance in an application such as a pool or spa heater that uses chemically treated water. (This appliance is suitable for filling large or whirlpool spa tubs with potable water.)
- Do not use substitute parts that are not authorized for this appliance.

MUST DO

- The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/ NFPA 54, or the Natural Gas and Propane Installation Code, CSA B149.1.*
- •When installed, the appliance must be electrically grounded in accordance with local codes or, in the absence of local codes, with the *National Electrical Code, ANSI/NFPA 70,* or the *Canadian Electrical Code, CSA C22.1.*
- •The appliance and its main gas valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.5 kPa) (13.84 in W.C.).
- The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psi (3.5 kPa) (13.84 in W.C.).
- Make sure the water heater and its water lines are protected from freezing. Damage due to freezing is not covered by the warranty.
- You must follow the installation instructions and those in Care and Maintenance for adequate combustion air intake and exhaust.

• Install the vacuum relief valve per local codes.

•Massachusetts 248 CMR Section 10.14 (I) "All potable water pressure tanks shall be provided with a vacuum-relief valve at the top of the tank that will operate up to a maximum water pressure of 200 P.S.I.G. and to a maximum water temperature of 200°F (93.3°C)."



INFORMATION

If a water heater is installed in a closed water supply system, such as one with a backflow preventer in the cold water supply line, means shall be provided to control thermal expansion. Contact the water supplier or local plumbing inspector on how to control thermal expansion.

- Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
- •Keep the air intake location free of chemicals such as chlorine or bleach that produce fumes. These fumes can damage components and reduce the life of your appliance.

Table 1

Prepare for installation			
Parts included			
 Water heater Temperature-Pressure Relief (T&P) Valve 	Gas Valve		
Tools needed			
 Manometer Pipe wrenches (2) Adjustable pliers Screwdrivers (2) Tools that might be needed Saw Threading machine with heads and oiler 	 Wire cutters Gloves Safety glasses Level d Torch set Copper tubing cutter Steel pipe cutter 		
Materials needed			
Soap solutionApproved venting	Teflon tape (recommended) or pipe compound		
Materials that may be needed			
 Heat tape Pipe insulation Electrical wire and conduit per local code 	 Single gang electrical box Wire nuts Unions and drain valves 		

Determine Installation Location

You must ensure that clearances will be met and that the vent length will be within required limits. Consider the installation environment, water quality, and need for freeze protection. Requirements for the gas line, water lines, and electrical connection can be found in their respective installation sections of this manual.

Water Quality

Water heater care should include evaluation of water quality. 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.

Table 2

	Maximum Level
Total Hardness	Up to 200 mg / L
Aluminium *	Up to 0.2 mg / L
Chlorides *	Up to 250 mg / L
Copper *	Up to 1.0 mg / L
Iron *	Up to 0.3 mg / L
Manganese *	Up to 0.05 mg / L
pH *	6.5 to 8.5
TDS (Total Dissolved Solids) *	Up to 500 mg / L
Zinc *	Up to 5 mg / L

* Source: Part 143 National Secondary Drinking Water Regulations

If you install this water heater in an area that is known to have hard water or that causes scale buildup, the water must be treated and/ or the heat exchanger flushed regularly.

Environment

Air surrounding the water heater is used for combustion and must be free of any compounds that cause corrosion of internal components. These include corrosive compounds that are found in aerosol sprays, detergents, bleaches, cleaning solvents, oil based paints/varnishes, and refrigerants. The air in beauty shops, dry cleaning stores, photo processing labs, and storage areas for pool supplies is often filled with these compounds. Therefore it is recommended that such locations be avoided.

If it is necessary for a water heater to be located in areas which may contain corrosive compounds, the following instructions are strongly recommended.

IMPORTANT CONSIDERATIONS FOR INSTALLATION:

- **DO NOT** install in areas where air for combustion can be contaminated with chemicals.
- •Before installation, consider where air has the ability to travel within the building to the water heater.
- Chemicals that are corrosive in nature should not be stored or used near the water heater.

Damage and repair due to corrosive compounds in the air is not covered by warranty.

Minimum Clearances

The minimum clearances from both combustibles and non-combustibles construction is: 0 inch from the sides, 0 inch from the back, twelve (12) inches (30.5 cm) from the top, four (4) inches (10.2 cm) from the front.



Installation Location

This water heater is not approved for use in manufactured (mobile) homes or outdoor installations.

<u>Attic</u>

The water heater installation must be performed in such a way that if the tank or any connection should leak, the flow of water will not cause damage to the structure. For this reason, it is not advisable to install the water heater in an attic or upper floor. When such locations cannot be avoided, a suitable drain pan should be installed under the water heater. (See drain pan at the following page)

<u>Garage</u>

Although this water heater is equipped with a flammable vapor sensor, gasoline, and other flammable substances should not be stored or used in the same vicinity or area of the water heater or any other appliance that may produce a spark or open flame.

It is not required to position this water heater on a stand as this water heater complies with the FVIR requirements and the burner and igniter are positioned greater than eighteen (18) inches (45.7 cm) from the base of the unit.

This water heater must be positioned or located as to not be subject to damage by a moving vehicle.

Refer to local code for installation requirements in a garage.

Crawl Space

When installing this water heater in a crawl space, position the water heater on a solid concrete platform or base to avoid damage to the unit. (Do not use wood)

Drain Pan

If the water heater is installed in a location that could damage the home or structure precautions must be taken to protect the property from water damage. In the event of a tank or component failure, an appropriately sized pan must be installed under the water heater. The pan must drain with a minimum diameter of $\frac{3}{4}$ " (1.9 cm) connection and shall be drained per local code requirements.

<u>Stand</u>

Depending on local code, a stand may not be required due to the ignition source being over eighteen (18) inches (45.7 cm) from the base of the appliance.

Alcove or closet

See clearance requirements and combustion air requirements.

Typical Installation Illustration

I.D.	Description
1	4" (10.2 cm) B-Vent
2	Combustion Air Screen
3	Outlet Receptacle
4	Operation Unit / Temperature Control
5	Temperature & Pressure-Relief Valve Discharge Pipe
6	Drain Pan
7	Drip Leg (Sediment Trap)
8	Gas Union
9	Gas Control Valve
10	Thermal Expansion Tank
11	Cold Water Supply
12	Cold Water Supply Valve
13	Temperature & Pressure-Relief Valve
14	Cold and Hot Unions
15	Hot Water Outlet Valve
16	Hot Water Outlet
17	Non-Tempered Return Line
18	Thermostatic Mixing Valve
19	Non-Tempered Supply Line



MIXING VALVE INSTALLATION



Insulation Blanket

This water heater meets or exceeds the National Appliance Energy Conservation Act standards with respect to insulation and standby losses. If an insulation blanket is still desired, the following procedure must be followed.

- a) Maintain an adequate distance from the vent.
- b) Do not cover the front door of the tankless engine or the lower enclosure of the assembly.
- c) Do not cover the combustion air grill located on the front door of the tankless engine.
- d) Do not obstruct the operation of the pressure-relief valve.
- e) Obtain new warning labels from the manufacturer to place on the blanket, directly over the existing labels.
- f) Frequently inspect the blanket to ensure the insulation blanket has not been disturbed.

Checklist to Determine Installation Location

- $\hfill\square$ The water heater is not exposed to corrosive compounds in the air.
- □ The water heater location complies with the clearances stated in the manual and on the label, located on the side of the unit.
- The area surrounding the water heater does not contain flammable vapors that could ignite.
- □ The water supply does not contain chemicals or exceed total hardness that will damage the heat exchanger.
- □ The water heater and its water lines are protected from freezing.
- □ A standard 3-prong 120 VAC, 60 Hz properly grounded wall outlet or other properly grounded 120 VAC, 60 Hz source is available.
- The installation must conform with local codes or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1/NFPA 54, or the Natural Gas and Propane Installation Code, CSA B149.1.
- □ Leave the entire manual taped to the water heater or give the entire manual directly to the consumer.

Combustion Air Requirements

This water heater requires adequate combustion air for ventilation and dilution of flue gases. Failure to provide adequate combustion air can result in unit failure, fire, explosion, serious bodily injury, or death. Use the following methods to ensure adequate combustion air is available for correct and safe operation of this water heater.

IMPORTANT

Combustion air must be free of corrosive chemicals. Do not provide combustion air from corrosive environments. Appliance failure due to corrosive air is not covered by warranty.

Combustion air must be free of acid-forming chemicals, such as sulfur, fluorine, and chlorine. These chemicals have been found to cause rapid damage and decay and can become toxic when used as combustion air in gas appliances. Such chemicals can be found in, but not limited to, bleach, ammonia, cat litter, aerosol sprays, cleaning solvents, varnish, paint, and air fresheners. Do not store these products or similar products in the vicinity of this water heater.

Unconfined Space

An unconfined space is defined in *National Fuel Gas Code, ANSI Z223.1/NFPA 54* as "a space whose volume is not less than fifty (50) cubic feet per 1,000 BTU/hr (4.8 m³ per kW per hour) of the aggregate input rating of all appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space." If the "unconfined space" containing the appliance(s) is in a building with tight construction, additional outside air may be required for proper operation. Outside air openings should be sized the same as for a confined space.



Confined Space

(Small Room, Closet, Alcove, Utility Room, Etc.)

A confined space is defined in the *National Fuel Gas Code, ANSI Z223.1/NFPA 54* as "a space whose volume is less than fifty (50) cubic feet per 1,000 BTU/hr (4.8 m³ per kW per hour) of the aggregate input rating of all appliances installed in that space." A confined space must have two combustion air openings. Size the combustion air openings based on the BTU input for all gas utilization equipment in the space and the method by which combustion air is supplied:

Louvers and Grilles

When sizing the permanent opening as illustrated in **Figure 5**, consideration must be taken for the design of the louvers or grilles to maintain the required free area required for all gas utilizing equipment in the space. If the free area of the louver or grille design is not available, assume wood louvers will have 25% free area and metal louvers or grilles will have 75% free area. Under no circumstance should the louver, grille, or screen have openings smaller than 1/4" (6 mm).

Example:

Wood: 10 in. (25 cm) x 12 in. (30.5 cm) x 0.25 = 30 in² (193.5 cm²) Metal: 10 in. (25 cm) x 12 in (30.5 cm) x 0.75 = 90 in² (580.6 cm²)

Location

To maintain proper circulation of combustion air, two permanent openings (one upper, one lower) must be positioned in confined spaces. The upper shall be within twelve (12) inches (30.5 cm) of the confined space and the lower opening shall be within twelve (12) inches (30.5 cm) of the bottom of the confined space. Openings must be positioned as to never be obstructed.

Combustion air provided to the appliance should not be taken from any area of the structure that may produce a negative pressure (i.e. exhaust fans, powered ventilation fans).



Using Indoor Air For Combustion

When using air from other room(s) in the building, the total vo-lume of the room(s) must be of adequate volume (Greater than fifty (50) cubic feet per 1,000 BTU/hr). Each combustion air opening must have at least one (1) square inch (6.45 cm²) of free area for each 1,000 BTU/hr, but not less than one hundred (100) square inches (645 cm²) each.

Using Outdoor Air For Combustion

Outdoor air can be provided to a confined space through two permanent openings, one commencing within twelve (12) inches (30.5 cm) of the top and one commencing within twelve (12) inches (30.5 cm) of the bottom of the confined space.

The openings shall communicate to the outside by one of two ways:



When communicating directly with the outdoors through horizontal ducts, each opening shall have a minimum free area of one (1) $in^2/2,000$ BTU/hr (11.0 cm²/kW) of total input rating of all appliances in the confined space. Note: If ducts are used, the cross sectional area of the duct must be greater than or equal to the required free area of the openings to which they are connected.

When communicating indirectly with the outdoors through vertical ducts, each opening shall have a minimum free area of one (1) in²/4,000 BTU/hr ($5.5 \text{ cm}^2/\text{kW}$) of total input rating of all appliances in the confined space. Combustion air to the appliance can be provided from a well ventilated attic or crawl space.

Venting Requirements

<u>Venting</u>

This water heater must be vented vertically to the outside of the building or structure.

This water heater is not designed or certified for side wall horizontal vent terminations.

All installations must be vented in accordance with *National Fuel Gas Code, ANSI Z223.1/NFPA 54* - latest edition and the requirements of state or local codes. In Canada, the furnaces must be vented in accordance with the *National Standard of Canada, CAN/ CSA B149.1* and *CAN/CSA B149.2* - latest editions and amendments and the codes of the local utility or other authority having jurisdiction.

NOTE: The vertical height of the Category I venting system must be at least as great as the horizontal length of the venting system.

- All vent (Category I) passing through a concealed space, an attic, or floor MUST be Type B double wall vent and/or Type B double wall vent connectors. For vent passing through an interior wall, use Type B vent with ventilated thimble **ONLY**.
- The UG40-92TFTT-N2U or UG40-92TFTT-P2U CANNOT be vented into any chimney serving an open fireplace or any other solid fuel burning appliance.
- Use the same diameter Category I connector or vent as permitted by NFPA 54/ANSI Z223.1 venting tables.
- It is not permitted to reduce vent diameter (4" or 10.2 cm).
- It is emphasized that vertical Category I vent or vent connector runs be as short and direct as possible.
- Vertical outdoor runs of type B or ANY single wall vent below the roof line are NOT permitted.
- •All horizontal vent runs to be sloped up away from the UG40-92TFTT-N2U or UG40-92TFTT-P2U a minimum of $\frac{1}{4}$ " (6 mm) per foot.
- All horizontal vent runs are to be supported, at a minimum, every 6' (1.8 m) using suitable clamps and/or metal straps.
- Existing gas vent or chimney must be checked to ensure they meet clearances and local codes.

The UG40-92TFTT-N2U or UG40-92TFTT-P2U can ONLY be connected to a manufactured chimney or vent that complies with a recognized standard. Venting into a masonry or concrete chimney is only permitted as outlined in the NFPA 54/ANSI Z223.1 National Fuel Gas Code venting tables. It is therefore a contractual obligation on the part of the installer to follow all safe venting requirements.

▲ WARNING

Poison carbon monoxide gas hazard

If this appliance is replacing a previously common vented water heater, it may be necessary to resize the existing chimney liner or vent to prevent over sizing problems for the other remaining appliance(s). See codes and/or standard having jurisdiction. Failure to properly vent this water heating appliance or other appliance(s) can result in property damage, personal injury, or death.

WARNING

TO PREVENT POSSIBLE PERSONAL INJURY OR DEATH DUE TO ASPHYXIATION, COMMON VENTING WITH OTHER MANU-FACTURER'S INDUCED DRAFT APPLIANCES IS NOT ALLOWED.

WARNING

Devices attached to the vent system intended to increase system efficiency by reducing the heat loss of the vent system **MUST** not be used on this water heater. Giant accepts no liability for damage or injury if such devices are installed on the vent system with this appliance.

WARNING

Vent Pipe Assembly: To avoid damage to the vent and vent adapter, pre-drill holes with a 1/8" (3.1 mm) drill bit. Attach the vent to the vent adapter with #8 screws.



Vent Dampers

Vent dampers must be certified in accordance with ANSI Z21.68.

Before installing any flue damper, consult the local gas authority and damper manufacturer for proper installation.

WARNING

Thermal Operated Vent Dampers **SHOULD NOT** be used with this appliance. This appliance has a thermal efficiency greater than 80%. This higher efficiency will result in lower flue gas temperatures. Such temperatures may be too low to activate a thermal operated vent damper. Use of a thermal operated flue damper on this product may result in spillage of exhaust gases and ultimately carbon monoxide poisoning.

Vent Inspection

The entire vent system (Combustion air ducts, louvers, and exhaust vent) must be checked periodically for signs of obstruction or damage. If damaged components are observed, they must be repaired or replaced immediately.

Vent Size

This water heater is equipped with a four (4) inch (10.2 cm) vent adapter and must never be attached to a vent smaller than four (4) inches (10.2 cm). Certain applications may require vent diameters greater than four (4) inches (10.2 cm). Consult your local gas supplier or authority to aid in the proper vent diameter selection per the requirements of the vent tables in the current edition of the *National Fuel Gas Code ANSI Z223.1/NFPA 54.*

Vent Connectors

Vent Connectors are relatively short runs of vent connecting the appliance to the chimney or vertical vent run.

Following is a list of appropriate vent connector material to use between the water heater and the chimney:

- Type B (B-Vent) Double wall, U.L. listed vent pipe
- Type B (B-Vent) Single wall, U.L. listed vent pipe

Note the following when installing a vent connector from the appliance to the chimney or vertical vent:



Length:

A vent connector shall be as short as practical and the appliance located as close as practical to the chimney or vent. The maximum horizontal length of the vent connector cannot exceed 75% of the height of the chimney or vent. Unnecessary bends should be avoided as to not create excessive resistance to flow of vent gases.

Prohibited locations

Vent Connectors cannot pass through any ceiling, floor, fire-wall, or fire partition.

Single-wall vent connectors

A single-wall vent connector must not pass through any interior walls, floors, or ceilings. A single-wall vent connector must not be installed in attics, crawl spaces, or any other confined space or inaccessible location. Maintain a minimum of six (6) inches (15.2 cm) from combustibles when using single walled vent connectors.

Double Walled, B-Vent

It is acceptable to pass through walls or partitions with double walled, B Vent.

<u>Slope</u>

Vent connectors must pitch 1/4 inch per foot (2.1 cm per meter) upward.

Inspection

The entire length of the vent connector shall be readily accessible for inspection, cleaning, and replacement.

<u>Joints</u>

Must be fastened by sheet metal screws or other approved methods.

Support

Vent connectors must be supported per the vent manufacturer's installation instructions to avoid dips or sags in the vent and maintain the required clearances.

Vent Termination

All flue (Vent) gases must be directed to the outdoors of the building or structure and must not terminate horizontally.

Table 3

Poof Slope	H (minimum)		
Roof Slope	ft	m	
Flat to 6/12	1.0	0.30	
Over 6/12 to 7/12	1.25	0.38	
Over 7/12 to 8/12	1.5	0.46	
Over 8/12 to 9/12	2.0	0.61	
Over 9/12 to 10/12	2.5	0.76	
Over 10/12 to 11/12	3.25	0.99	
Over 11/12 to 12/12	4.0	1.22	
Over 12/12 to 14/12	5.0	1.52	
Over 14/12 to 16/12	6.0	1.83	
Over 16/12 to 18/12	7.0	2.13	
Over 18/12 to 20/12	7.5	2.28	
Over 20/12 to 21/12	8.0	2.44	





- If the gas vent is twelve (12) inches (30.5 cm) or less in diameter and located not less than eight (8) feet (2.4 m) from a vertical wall or similar obstruction, the termination must comply with the requirements stated in **Table 3** and **Figure 2**. If the gas vent is greater than twelve (12) inches (30.5 cm) in diameter or located less than eight (8) feet (2.4 m) from a vertical wall or similar obstruction, the termination must end not less than two (2) feet (61 cm) above any portion of a building within ten (10) feet (3 m) horizontally.
- B-Vent type gas vent shall terminate at least five (5) feet (1.5 m) in vertical height above the highest connected appliance draft hood or flue collar.
- Decorative shrouds or coverings shall not be installed over the gas vent termination unless listed for use with the specific gas vent and are installed in accordance with the manufacturer's installation instructions.
- •All gas vents shall extend through the roof flashing, roof jack, or roof thimble and terminate with a listed cap or listed roof assembly.
- The gas vent shall terminate at least three (3) feet (91.4 cm) above any forced air inlet located within ten (10) feet (3 m).

Masonry Vertical Venting

Masonry Chimneys shall be built and installed in accordance with NFPA 211, Standard for Chimneys, fireplaces, Vents and Solid Fuel-Burning Appliances.

Before assembling the vent connector to a chimney, the chimney must be inspected for signs of obstruction or damage. If previously used for solid or liquid fuel burning appliances or fireplaces, the chimney must be cleaned.

Do not connect the vent of this water heater to a chimney servicing a separate solid fuel burning appliance.

Do not connect the vent of this water heater to a tile lined masonry chimney. The chimney must be lined with either B-Vent or a listed chimney lining system.

Connection to a chimney must be firmly attached, sealed, and must be located above the extreme bottom of the chimney.

B-Vent Vertical Venting

Vertical gas vent must be installed with U.L. listed type B-vent material in accordance with the manufacturer's installation instructions and the requirements stated in the "*National Fuel Gas Code*", *NFPA 54, ANSI Z223.1*- latest edition and the requirements of local codes.

Vent should extend in a generally vertical direction. Any vent angle less than 45 degrees is considered horizontal. The total horizontal distance of the vent system plus the horizontal length of the vent connector must not exceed 75 % of the vertical height of the vent.

An unused chimney or masonry enclosure may be used as a chase for the installation of listed B-vent material.

Common Venting

As a Category I appliance, this water heater can be vented vertically with type B-1 vent systems and lined masonry chimneys. Follow the *National Fuel Gas Code, ANSI Z223.1* and or the *National Gas Installation code, CSA-B149.1 & .2* for proper installation practices. If you are unsure or need assistance in correct application of a common vent installation, consult the local gas authority for assistance in the vent system design.

Checklist for Combustion Air and Venting Requirements

- □ Verify proper clearances around the vents.
- Ensure that the Combustion Air Requirements are followed that will provide sufficient combustion air for the appliance.
- □ Ensure you have used the correct venting products for Category 1 and that you have completely followed the venting manufacturer's installation instructions and these installation instructions. All installations must be vented in accordance with *National Fuel Gas Code NFPA 54/ANSI Z223.1* - latest edition and the requirements of state or local codes. In Canada, the furnaces must be vented in accordance with the *National Standard of Canada, CAN/CSA B149.1* and *CAN/CSA B149.2* - latest editions and amendments and the codes of the local utility or other authority having jurisdiction.
- □ All horizontal vent runs must be sloped up away from the water heater a minimum of 1/4" (6 mm) per foot.
- $\hfill\square$ Verify that the vent termination clearances are followed.
- □ Verify that there is adequate combustion air.

Installation of Plumbing

Temperature & Pressure-Relief Valve

Install the Temperature & Pressure-Relief (T&P) Valve according to these instructions.

This water heater is provided with a properly certified Temperature & Pressure-Relief Valve by the manufacturer.

An approved Temperature & Pressure-Relief Valve is required by the American National Standard (ANSI Z21.10.3) for all water heating systems, and shall be accessible for servicing.

<u>DO NOT</u>

- Do not plug the T&P valve and do not install any reducing fittings or other restrictions in the relief line. The relief line should allow for complete drainage of the T&P valve and the line.
- Do not place any other type valve or shut-off device between the relief valve and the water heater.

MUST DO

- The T&P valve must comply with the standard for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems ANSI Z21.22 and/or the standard Temperature, Pressure, Temperature and Pressure-Relief Valves and Vacuum-Relief Valves, CAN1-4.4.
- The T&P valve must be rated up to 150 psi and at least the maximum BTU/hr of the appliance.
- The discharge from the T&P Valve should be piped to the ground or into a drain system to prevent exposure or possible burn hazards. Follow local codes. Water discharged from the relief valve could cause severe burns instantly, scalds, or death.
- The Temperature & Pressure-Relief Valve must be manually operated once a year to check for correct operation.
- The T&P valve should be added to the hot water outlet line and near the hot water outlet according to the manufacturer's instructions. **DO NOT** place any other type valve or shut-off device between the relief valve and the water heater.

INFORMATION

 If a T&P discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector on how to correct this situation. Do not plug the relief valve.

Piping Requirements

A manual valve must be placed in the water inlet connection to the water heater before it is connected to the water line. Unions may be used on both the hot and cold water lines for future servicing and disconnection of the unit.

<u>DO NOT</u>

• Do not introduce toxic chemicals such as those used for boiler water treatment to the potable water used for space heating.

MUST DO

- The piping (including soldering materials) and components connected to this appliance must be approved for use in potable water systems.
- Purge the water line to remove all debris and air. Debris will damage the water heater.
- If the appliance will be used as a potable water source, it must not be connected to a system that was previously used with a no potable water heating appliance.
- •Ensure that the water filter on the water heater is clean and installed.

Connect Water Heater to Water Supply

Water connections to the tankless water heater should follow all state and local plumbing codes.

If this is a standard installation, refer to the Piping Diagram for Basic 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.
- 2) 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.

Filling the Water Heater

DO NOT OPERATE THIS WATER HEATER UNLESS IT IS COM-PLETELY FILLED WITH WATER. To prevent damage to the appliance, all air must be relieved from the system and a hot water fixture must be flowing water before the water heater is plugged in and turned on. To ensure safe and effective operation of the waterheater use the following filling procedure:

To fill the water heater:

- 1) Ensure the drain valve located at the bottom of the tank is closed.
- 2) Open nearest hot water fixture in the system.
- 3) Open the cold supply valve to the water heater.
- 4) Keep the hot water fixture open until the tank is filled and constant flow is obtained at the fixture.
- 5) Check water heater connections and plumbing system for damage or leaks. Repair, if needed.

Checklist for Plumbing

- Purge the water line of all debris and air by closing the hot isolation valve and opening the cold isolation valve and its drain.
 Debris will damage the water heater. Use a bucket or hose, if necessary.
- Ensure that hot and cold water lines are not crossed to the unit and are leak free.
- □ Ensure that the temperature & pressure-relief valve is installed.
- □ Clean the inlet water filter. Refer to the "Water Filter Inspection, Detection and Cleaning" section in this manual for the water filter cleaning procedure.
- □ Check for proper water pressure to the water heater. Minimum water pressure is 20 psi. A water pressure of 30-50 psi is recommended for maximum performance.

Installation of Gas Supply

WARNING

- 1) If you are not knowledgeable or qualified to install gas lines or connections, then contact a licensed professional to install the gas supply.
- 2) Turn off 120 V power supply.
- 3) Turn off the gas.
- 4) Gas is flammable. Do not smoke or provide other ignition sources while working with gas.
- 5) Do not turn on the water heater or gas until all fumes are gone.

General Instructions

In order to access the gas connections, remove the screws that attach the lower enclosure to the assembly.



MUST DO

- •A manual gas control valve must be placed in the gas supply line to the water heater. A union can be used on the connection above the shut-off valve for the future servicing or disconnection of the unit.
- Check the type of gas and the gas inlet pressure before connecting the water heater. If the water heater is not of the gas type that the building is supplied with, DO NOT connect the water heater. Contact the dealer for the proper unit to match the gas type.
- Check the gas supply pressure immediately upstream at a location provided by the gas company. Supplied gas pressure must be within the limits shown in the "Specifications" section with all gas appliances operating.
- Before placing the appliance in operation all joints including the heater must be checked for gas tightness by means of leak detector solution, soap and water, or an equivalent nonflammable solution, as applicable. (Since some leak test solutions, including soap and water, may cause corrosion or stress cracking, the piping shall be rinsed with water after testing, unless it has been determined that the leak test solution is noncorrosive.)
- Use approved connectors to connect the unit to the gas line. Purge the gas line of any debris before connection to the water heater.
- Any compound used on the threaded joint of the gas piping shall be a type which resists the action of liquefied petroleum gas (propane / LPG).
- The gas supply line shall be gas tight, sized, and so installed as to provide a supply of gas sufficient to meet the maximum demand of the heater and all other gas consuming appliances at the location without loss of pressure.
- Always check all gas pipe connections and fittings for leaks before operating the water heater. Use soapy water on all fittings and visually inspect for bubble formation. Rinse off soapy water and wipe dry.

INFORMATION

• Refer to an approved pipe sizing chart if in doubt about the size of the gas line.

Size the gas pipe

The gas supply must be capable of handling the entire gas load at the location. Gas line sizing is based on gas type, the pressure drop in the system, the gas pressure supplied, and gas line type. For gas pipe sizing in the United States, refer to the *National Fuel Gas Code, NFPA 54*. The below information is provided as an example. The appropriate table from the applicable code must be used.

 For some tables, you will need to determine the cubic feet per hour of gas required by dividing the gas input by the heating value of the gas (available from the local gas company). The gas input needs to include all gas products at the location and the maximum BTU usage at full load when all gas products are in use.

Massachusetts - Required Plumbing



2) Use the table for your gas and pipe type to find the pipe size required. The pipe size must be able to provide the required cubic feet per hour of gas or the required BTU/hour.

Cubic Feet	Gas Input of all gas products (BTU/HR)
per Hour =	Heating Value of Gas (BTU/FT ³)

Example:

The heating value of natural gas for your location is 1,000 BTU/FT³. The gas input of the UG40-92TFTT-N2U or UG40-92TFTT-P2U is 91,500 BTU/HR. Additional appliances at the location require 65,000 BTU/HR. Therefore the cubic feet per hour = (91,500 + 65,000) / 1,000 = 156.5 FT³/HR (4.43 m³/HR). If the pipe length is ten (10) feet (3 m) then the 3/4 inch (1.9 cm) pipe size is capable of supplying 156.5 FT³/HR (4.43 m³/HR) of natural gas.

Table 4

Pipe Sizing Table - Natural Gas

Schedule 40 Metallic Pipe Inlet Pressure: less than 2 psi (55 inches (140 cm) W.C.) Pressure Drop: 0.3 inches (7.6 mm) W.C. Specific Gravity: 0.60

Capacity in Thousands of BTU per Hour

Length	Pipe Size (inches)				
	1/2	3/4	1	1 1/4	
10	131	273	514	1,060	
20	90	188	353	726	
30	-	151	284	583	
40	-	129	243	499	
50	-	114	215	442	
60	-	104	195	400	
70	-	95	179	368	
80	-	89	167	343	
90	-	83	157	322	
100	-	79	148	304	

Table 5

	Pipe Sizin Sched	g Table - Pro ule 40 Metalli	o pane Gas ic Pipe		
Inlet Pressure: 11.0 inches (27.9 cm) W.C.					
Pressure Dr	op: 0.5 inches	s (Ì.3 cm) Ŵ.	C.		
Specific Grav	vity: 1.50	x 7			
	Capacity in T	housands of I	BTU per Hour		
1	Pipe Size (inches)				
Length	1/2	3/4	1	1 1/4	
10	291	608	1,150	2,350	
20	200	418	787	1,620	
30	160	336	632	1,300	
40	137	287	541	1,110	
50	122	255	480	985	
60	110	231	434	892	
80	101	212	400	821	
100	94	197	372	763	

Connect Electricity

WARNING

Do not use an extension cord or an adapter plug with this appliance.

The water heater must be electrically grounded in accordance with local codes and ordinances or, in the absence of local codes, in accordance with the *National Electrical Code, ANSI/ NFPA No. 70.*

Water heaters are equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding terminal from this plug.

Do not rely on the gas or water piping to ground the water heater. A screw is provided in the junction box for the grounding connection.

The water heater requires 120 VAC, 60 Hz power from a properly grounded circuit.

If using the five (5) foot (1.5 m) long power cord, plug it into a standard 3-prong 120 VAC, 60 Hz properly grounded wall outlet.

Adjust for High Altitude

Set switches # 2 and # 3 to the values shown in table below for your altitude. The default setting for the appliance is 0-2,000 ft (0-610 m) with switches # 2 and # 3 in the OFF position.

Dip Switch Settings

Altitude	No.2	No.3
0-2,000 ft (0-610m)	OFF	OFF
2,001-5,400 ft (610-1,646 m)	OFF	ON
	SWITCH 	SWITCH → ON 0 1 F 2 F 3 4 5 6 7 8

Checklist for Gas and Electricity

- □ A manual gas control valve is placed in the gas line to the water heater.
- □ Check the gas lines and connections for leaks.
- $\hfill\square$ Confirm that the gas inlet pressure is within limits.
- $\hfill\square$ Confirm that the water heater is rated for the gas type supplied.
- $\hfill\square$ Confirm that the electricity is supplied from 120 VAC, 60 Hz power source and is in a properly grounded circuit.
- $\hfill\square$ An extension cord or an adapter plug has not been used with the water heater.

Installation CheckList	
The water heater is not exposed to corrosive compounds in the air.	□
The water heater location complies with the clearances.	□
• The water supply does not contain chemicals or exceed total hardness that will damage the heat exchanger	□
• Ensure the water heater and its water lines are protected from freezing. Damage due to freezing is not covered by the warranty	
• Confirm that the electricity is supplied from a 120 VAC, 60 Hz power source, is in a properly grounded circuit, and turned on	□
• The installation must conform with local codes or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1/NFPA 54, or the Natural Gas and Propane Installation Code, CSA B149.1	□
Verify proper clearances around the vents and air intakes	□
• Ensure that the Combustion Air Requirements are followed that will provide sufficient combustion air for the appliance.	□
• Ensure you have used the correct venting products for the model installed and that you have completely followed the venting manufacturer's installation instructions and these installation instructions	□
The water heater must be vented vertically to the outside of the building or structure.	
• Purge the water line of all debris. Debris will damage the water heater. Use a bucket or hose, if necessary	□
• Ensure the water heater is vented in accordance with National Fuel Gas Code, ANSI Z223.1/NFPA 54 - latest edition and the requirements of state or local codes.	□
Ensure that hot and cold water lines are not crossed to the unit and are leak-free.	□
• Clean the inlet water filter by first powering OFF the water heater. Remove the lower enclosure. Drain and relieve the pressure from the system. Remove and clean the filter of any debris that may reduce water flow. Once clean, replace the filter. Close the drain valve and pressurize the system. Power the unit back ON and set desired temperature. For more information on cleaning the filter, please see page 26 section C.	□
Ensure that the temperature/pressure relief valve is installed.	□
Check for proper water pressure to the water heater. Minimum water pressure is 20 psi. A water pressure of 30-50 psi is recommended for maximum performance.	□
• A manual gas control valve has been placed in the gas line to the water heater.	□
Check the gas lines and connections for leaks	□
Confirm that the gas inlet pressure is within limits.	□
Confirm that the water heater is rated for the gas type supplied.	□
• An extension cord or an adapter plug has not been used with the water heater.	□
• Verify the system is functioning correctly by connecting your manometer to the gas pressure test port on the water heater. Operate all gas appliances in the home or facility at high fire. The inlet gas pressure at the water heater must not drop below that listed on the rating plate.	□
Ensure the lower enclosure is installed	
• Explain to the customer the importance of not blocking the vent termination or air intake	□
• Explain to the customer the operation of the water heater, safety guidelines, maintenance, and warranty.	□
Inform the consumer of the importance of good water quality and its effects on the warranty.	□
•Leave the entire manual taped to the water heater or give the entire manual directly to the consumer	□

TECHNICAL DATA

Specifications

	Model	UG40-92TFTT-N2U or UG40-92TFTT-P2U
Minimum Gas Consumption	BTU/hr	Natural Gas: 59,500 BTU/hr Propane: 47,600 BTU/hr
Maximum Gas Consumption	BTU/hr	Natural Gas: 91,300 BTU/hr Propane: 87,300 BTU/hr
First-Hour Rating		180 GPH
Storage Tank Volume		40 gallons (151.5 litres)
Recovery (90° Rise)		90 GPH
Temperature Selections		110,120,130,135,140
Maximum Temperature Settin	าg	140°F (60°C)
Minimum Temperature Settin	Ig	110°F(43°C)
Weight		150 lbs.(68 kg)
Thermal Efficiency		80 %
Noise level		50 dB
	Standby	3 Watts
Electrical Consumption	Operation	150 Watts
	Fuse	5 Amps
Minimum Gas Supply	Natural Gas	4.0 inches (10.2 cm) W.C.
Pressure	Propane	8.0 inches (20.3 cm) W.C.
Maximum Gas Supply	Natural Gas	10.5 inches (26.7 cm) W.C.
Pressure	Propane	13.5 inches (34.3 cm) W.C.
Type of Appliance		Automatic Circulating Tank Water Heater
Approved Gas Type		Natural Gas or Propane - Ensure unit matches gas type supplied at the installation location.
Connections		Gas Supply: 1/2" (1.3 cm) MNPT, Cold Water Inlet: 3/4" (1.9 cm) MNPT, Hot Water Outlet: 3/4" (1.9 cm) MNPT
Ignition System		Direct Electronic Ignition
Electric Connections		Appliance: AC 120 Volts, 60Hz
Water Temperature Control		Simulation Feedforward and Feedback
Water Supply Pressure		Minimum Water Pressure: 20 PSI (Recommended 30-50 PSI for maximum performance)
Maximum Water Supply Pressure		150 PSI
		Flammable Vapor Sensor
Sensor and Switches		Combustion Air Co Sensor
		Bi-Metal Overheat Switch

Giant is continually updating and improving products. Therefore, specifications are subject to change without prior notice.

The maximum inlet gas pressure must not exceed the value specified by the manufacturer. The minimum value listed is for the purpose of input adjustment.

TECHNICAL DATA

Dimensions



TECHNICAL DATA

Wiring Diagram



REPLACEMENT PARTS

No	Description of engine parts
1	Exhaust outlet assembly
2	CO sensor
3	Wall installation bracket
4	Outgoing water thermistor
5	Combustion chamber front plate assembly
6	Burner thermistor
7	Flammable vapor assembly
8	Combustion air assembly
9	Operation unit
10	????
11	Water flow control device
12	Water flow sensor
13	Water filter assembly
14	Water inlet
15	Combustion fan
16	????
17	Hot water outlet
18	Drain valve
19	Gas connection
20	Gas control assembly
21	Surge protector
22	Igniter
23	P.C.B.
24	Manifold assembly
25	Flame rod
26	Electrode
27	Thermal fuse
28	Heat exchanger
29	Overheat switch
30	Exhaust duct box
31	????
32	Front panel assembly
33	Main burner
No	Description of tank parts

NO	Description of tank parts
34	Side trim
35	Engine
36	Alternative pump without flange (optional)
37	Shoe-horse grommet
38	Front cover
39	Flexible hose
40	Close nipple
41	Hexagonal reducing bushing
42	Thermostat bracket
43	Thermostat bracket
44	Thermistor
45	Drain valve
46	Dip tube
47	Anode
48	Outlet nipple
49	T & P valve
50	Outlet Joint with pipe
51	J-tube
52	Flexible hose





Alternative pump without flange (optional)

33

32

(Optional aluminum anode part # is 107000127)

Consumer Operation Guidelines for the Safe Operation of your Water Heater

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 death.

BEFORE LIGHTING: ENTIRE SYSTEM MUST BE FILLED WITH WATER AND AIR PURGED FROM ALL LINES.

- a) This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- b) **BEFORE OPERATING**, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS:

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

OPERATING INSTRUCTIONS

- 1) STOP! Read the safety information above on this label.
- 2) Set the thermostat to the lowest setting.
- 3) Turn off all electric power to the appliance.
- 4) This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- 6) Wait five (5) minutes to clear out any gas. 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 the manual gas control valve located at the gas inlet of the appliance counterclockwise 🔨 to the ON position.
- 8) Turn on all electrical power to the appliance.
- 9) Set the thermostat to desired setting.
- 10) If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

- 1) Set the thermostat to lowest setting.
- 2) Turn off all electric power to the water heater if service will be performed.
- 3) Turn the manual gas valve at the gas inlet of the appliance clockwise to the OFF position.

How to use the Temperature Controller



NOTE: Freeze protection will be activated as long as gas and electricity are available.

Five temperature settings are available. Push the up and down arrows to choose your desired temperature setting. The number on the display corresponds to the temperatures below:

1 = 110°F (43.3°C) 2 = 120°F (48.9°C) 3 = 130°F (54.4°C) 4 = 135°F (57.2°C) 5 = 140°F (60°C)

To display the recovery flow rate in gallons per minute through the unit (not to the fixture), press the UP button for three (3) seconds, followed by ON/OFF.

To display the temperature supplied to the storage tank in degrees Fahrenheit, press the DOWN button for three (3) seconds followed by ON/OFF.

(Note: temperature will display only one or two (2) digits, Examples: 8 = 80 to 89 and 14 = 140 to 149)

WARNING

- Before operating, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- Keep the area around the appliance clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
- Always check the water temperature before entering a shower or bath.
- Do not use this appliance if any part has been under water. Immediately call a licensed professional to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

WARNING

Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.

- Do not adjust the DIP switch unless specifically instructed to do so.
- Do not use an extension cord or an adapter plug with this appliance.
- Any alteration to the appliance or its controls can be dangerous and will void the warranty.

If you install this water heater in an area that is known to have hard water or that causes scale build-up the water must be treated and/or the heat exchanger flushed regularly. Giant provides a "Scale Control System" that offers superior lime scale prevention and corrosion control by feeding a blend of control compounds into the water supply. Damage and repair due to scale in the heat exchanger is not covered by warranty.

Keep the air intake location free of chemicals such as chlorine or bleach that produce fumes. These fumes can damage components and reduce the life of your appliance. Damage and repair due to corrosive compounds in the air is not covered by warranty.

Diagnostic Codes and Remedies

WARNING

Some of the checks below should be performed by a licensed professional. Consumers should never attempt any action that they are not qualified to perform.

Code	Definition		Remedy
05	Air Filter Error		Follow the procedure <u>"Air Screen Inspection, Detection & Cleaning"</u> in this manual. If the error code continues to flash after cleaning the air filter, review the items in "Code 10" or contact a qualified service technician.
07	Circulation Flow Rate Has Dropped Below 2.1 gpm		Check water filter for blockage. Check pump operation and wiring. Clean Heat Exchanger.
			Check that nothing is blocking the vent, inlet screen or "Combustion Air Assembly". Check all vent components for proper connections.
10	Air Supply or Exhaust Blockage	Licensed professional only	Ensure listed 4" (10.2 cm) B-Vent is used and there are no reductions in the vent system. Check fan for blockage. Ensure vent length, vent size, and combustion air comply with the requirements stated in the <i>National Fuel Gas Code, ANSI Z223.1/NFPA 54</i> , or the <i>Natural Gas and Propane Instala-</i> <i>tion Code, CSA B149.1.</i>
			Check that the gas is turned on at the water heater, gas meter, or cylinder. Ensure appliance is properly grounded.
11	No Ignition	Licensed professional only	Ensure gas type and pressure is correct. Ensure gas line, meter, and/or regulator is sized properly. Bleed all air from gas lines. Verify dip switches are set properly. Ensure igniter is operational. Check igniter wiring harness for damage. Check gas solenoid valves for open or short circuits. Remove burner cover and ensure all burners are properly seated. Remove burner plate and inspect burner surface for condensation or debris.
			Check that the gas is turned on at the water heater, gas meter, or cylinder. Check for obstructions in the flue outlet. Ensure appliance is properly grounded
12	No Flame	Licensed professional only	Ensure gas line, meter, and/or regulator is sized properly. Ensure gas type and pressure is correct. Bleed all air from gas lines. Ensure vent length, vent size, and combustion air comply with the requirements stated in the National Fuel Gas Code, ANSI Z223.1/NFPA 54, or the Natural Gas and Propane Instala- tion Code, CSA B149.1. Verify dip switches are set properly. Check power supply for loose connections. Check power supply for proper voltage and voltage drops. Ensure flame rod wire is connected. Check flame rod for carbon build-up. Disconnect and reconnect all wiring harnesses on unit and PC board. Check for DC shorts at components. Check gas solenoid valves for open or short circuits. Remove burner plate and inspect burner surface for condensation or debris.
13	Combustion		Review items liste under codes "05" and "10".
FE	Flammable Vapors		• LEAVE THE AREA IMMEDIATELY, leaving the exit point open to allow ventilation.
	Delected		• DO NOT TOUCH any electric device (including phone or light switch).
			• CALL EMERGENCY PERSONNEL from a neighbors phone.
			• DU NUI IRY to reset the water heater or light the pilot to any other appliance.
	When safety personnel have identified the area as safe and all flammable vapors have been removed and eliminated, the can be reset by unplugging the unit then plugging back in. If "FE" continues to flash after area is determined to be free flammable vapors, contact a qualified service technician.		

Code	Definition		Remedy
			Check for restrictions in air flow around unit and vent terminal.
14	Thermal Fuse	Licensed professional only	Check gas type of unit and ensure it matches gas type being used. Ensure dip switches are set to the proper position. Check for foreign materials in combustion chamber and/or exhaust piping. Check heat exchanger for cracks and/or separations. Check heat exchanger surface for hot spots which indicate blockage due to scale build-up. Refer to instructions in manual for flushing heat exchanger. Measure resistance of safety circuit. Ensure high fire and low fire manifold pressure is correct. Check for improper conversion of product.
	Over Temperature		Check for restrictions in air flow around unit and vent terminal.
16	Warning (safety shutdown because unit is too hot)		Check for foreign materials in combustion chamber and/or exhaust piping. Check for clogged heat exchanger. Check that the gas type being used it correct for your unit.
30	FV Sensor	Licensed professional only	Check sensor wiring for damage. Measure resistance of sensor.
31	Burner Sensor		Replace sensor.
32	Heat Exchanger Outgoing Tempera- ture Sensor		Check sensor wiring for damage. Measure resistance of sensor. Clean sensor of scale build-up. Replace sensor.
35	Tank Temperature Sensor		Check sensor wiring for damage. Measure resistance of sensor. Verify that sensor is properly positioned on the tank surface. Replace sensor.
38	CO or FV Sensor		Check sensor wiring for damage. Measure resistance of sensor. Replace sensor.
52	Modulating Sole- noid Valve Signal		Check modulating gas solenoid valve wiring harness for loose or damaged terminals. Measure resistance of valve coil.
61	Combustion Fan		Ensure fan will turn freely. Check wiring harness to motor for damaged and/or loose connections. Measure resistance of motor winding.
63	Circulation flow rate has dropped below 1.3 gpm		Check water filter for blockage. Check pump operation and wiring. Clean Heat Exchanger.
71	SV0, SV1, SV2, SV3 Solenoid Valve Circuit Fault		Check wiring harness to all solenoids for damage and/or loose connections. Measure resistance of each solenoid valve coil.
72	Flame Sensing Device		Verify flame rod is touching flame when unit fires. Check all wiring to flame rod. Remove flame rod and check for carbon build-up; clean with sand paper. Check inside burner chamber for any foreign material blocking flame at flame rod. Measure micro amp output of sensor circuit with flame present. Replace flame rod.
73	Burner Sensor Circuit		Check sensor wiring and PCB for damage. Replace sensor.
No code	No hot water, no light, or error code on the display		Confirm the water heater is plugged in and 120 volts is available.

SYSTEM MAINTENANCE

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

WARNING

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

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

NOTE: Do not operate this water heater if the Air Screen is not in place.

Air Screen Inspection, Detection & Cleaning

A. Inspection:

- To maintain optimum performance, periodically inspect the HTT Engine Air Screen.
- If the Air Screen appears to have lint and/or dust build up, follow the cleaning procedure described in step C.
- If the air screen appears damage, contact a qualified service provider for a replacement air filter assembly (Part No. 108000030).

B. Detection: (Controller Flashing 05 or 13)

- Flashing error code 05 or 13 may be an indication that the Air Screen is dirty or restricting air flow to the water heater. Follow the cleaning procedure described in Step C.
- If the controller continues to flash 13 after cleaning the Air Screen, turn off the unit and contact a qualified service provider.

C. Cleaning:

- 1) Power OFF the water heater
 - Push the round power button located on the right hand side of the controller.
 - Display will go blank when the power is OFF.
- 2) Remove the Air Screen Door
 - Slide the door latch to the right.
 - Swing the door open and pull the door off the water heater front panel.

- 3) Clean the Air Screen
 - With mild dish soap and a soft bristle brush, scrub the screen area of the Air Screen Door.
 - •With clean water, rinse the soap off the screen.
- 4) Dry the Air Screen
 - With a lint free towel, dry the lint screen.
- 5) Inspect and Replace the Air Screen
 - Inspect the air screen for any debris that may restrict air flow to the unit.
 - If the screen still appears dirty repeat Step 3.
 - Replace the Air Screen Door by aligning the tab at the right of the Air Screen Door with slots on the water heater panel. With the latch slid to the right rotate the door to the closed position and lock the door in place by sliding the latch the left.
- 6) Power ON the water heater



Water Filter Inspection, Detection & Cleaning

A. Inspection:

- To maintain optimum performance, periodically inspect the water filter.
- To clean the water filter, follow the cleaning procedure described in Step C.
- If the water filter appears damaged, contact a qualified service provider for a replacement filter (Part No.107000032).
- B. Detection: (Controller Flashing 07 or 63)
- •Flashing 07 is an indication that the water filter is dirty or restricting water flow through the water heater. Although the water heater will continue to operate, the cleaning procedure described in Step C should be performed as soon as possible.
- •Flashing 63 is an indication that the water filter is blocked and the appliance can no longer continue to heat water. Follow the cleaning procedure described in Step C.
- If the controller continues to flash the error code after cleaning the water filter, turn off the unit and contact a qualified service provider as this may indicate a pump error.

SYSTEM MAINTENANCE

C. Cleaning:

- 1) Power OFF the water heater.
 - Push the round power button located on the right hand side of the controller.
 - Display will go blank when the power is off.
- 2) Remove the lower enclosure.
 - Remove the screws around the perimeter of the pump enclosure.
 - Remove the enclosure by first pulling away the bottom portion.
- 3) Drain and Relieve pressure from the system.
 - Close the cold water supply valve on the water heater.
 - Open any hot water fixture and leave open to allow draining.
 - Attach one end of a hose to the drain valve and position the other end of the hose at a near by drain.
- 4) Remove the filter by turning the thumb screw in a counterclockwise motion.
- 5) Clean the filter and remove any debris that may reduce water flow.
- 6) Replace the filter. Turn the thumb screw in clockwise direction until finger tight.
- Close the drain valve and open the cold water supply valve leaving the hot water fixture open until all air is out of the system.
- 8) Power ON the water heater and set to desired temperature.
- 9) Close the hot water fixture when finished.

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.

<u>Anode</u>

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

The life expectancy of the anode is reduced where a water softener is introduced to fight hard make this water extremely conductive. In these conditions, the anode is consumed more rapidly and should be verified every year.

In certain water conditions, the anode will react with the water, producing discolored 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 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 to a type more suitable for these conditions (aluminum anode) and by chlorinating the water heater and plumbing system (**Maximum chloride level not to exceed 250 mg/L**). If the problem persists, special filtration equipment may be required. Under no circumstances is the anode to be removed from the water heater on a permanent basis. **Removal of the anode 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.

Hybrid Tank-Tankless Flush Procedure

Use the following procedure to flush the heat exchanger of lime or scale build-up. Damage caused by lime buildup is not covered by the unit's warranty. After flushing, reset any error codes by turning off the power to the unit and turning the power back on.

- 1) Disconnect electrical power to the water heater.
- CLOSE the cold water supply valve. Leave the hot water valve and a hot water fixture OPEN to remove pressure from the system.
- Connect one end of a hose to the drain valve on the tank and direct the other end to a drain. OPEN the drain valve.
 <u>NOTE</u>: Do not go any further until all water has drained from the tank.
- 4) Remove the (3/4" NPT) flex fittings ☆ and ☆ from the assembly. (Note: The tankless unit will still contain approximately 1/2 gallon (1.9 L) of water. Prepare a bucket to collect this water.)
- 5) Connect pump outlet hose (H1) to the (3/4" NPT) in-line filter fitting at the base of the engine.
- 6) Connect drain hose (H3) to the (3/4" NPT) supply fitting at the base of the engine.

SYSTEM MAINTENANCE

- 7) Pour approximately four (4) gallons (15.2 L) of virgin, food grade, white vinegar or citric acid into a pail.
- 8) Place the drain hose (H3) and the hose (H2) to the pump inlet into the cleaning solution.
- 9) Operate the pump and allow the cleaning solution to circulate through the water heater for at least forty-five (45) minutes.
- 10) Turn off pump.
- 11) Rinse the cleaning solution from the water heater as follows:a) Disconnect hose (H1) from the engine.
 - b) Connect a cold water supply fitting and hose to the IN-LINE FILTER fitting at the base of the engine (3/4" NPT).
 - c) Move drain hose (H3) from the pail to a drain.
 - d) Open cold water supply and allow water to flow through the engine for five (5) minutes.
 - e) Remove, clean, and replace the in-line filter.
 - f) Remove Hose (H3) and the cold water supply hose from the base of the engine.
 - g) Reinstall the (3/4" NPT) flex fittings $\stackrel{1}{\bigtriangleup}$ and $\stackrel{2}{\bigstar}$ to the assembly.
 - h) CLOSE THE DRAIN VALVE.
 - i) Open the cold water supply valve until water flows from the hot water fixture.
 - j) Close the cold water supply valve.
 - k) Connect power to the water heater and turn the temperature down to set point 1.
- 12) Open the cold water supply valve until water flows from the hot water fixture (See Step 2).
- 13) Close the hot water fixture and inspect the appliance and plumbing for leaks.



CONSUMER SUPPORT

Warranty Registration Information

The installer is reasonable for your water bester's correct instal
lation. Please complete the information below to keep for your records:
Purchased from:
Address:
Phone:
Date of Purchase:
Model No.:
Serial No.:
Installed by:
Installer's License No.:
Address:
Phone:
Installation Date:
Giant Factories Inc.: 40 Lesage Avenue, Montreal-East (Qc) H1B 5H3.

LIMITED WARRANTY FOR PERFORMANCE SERIES UGTC-152, UGTC-199

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Limited Warranty for Hybrid Tank - Tankless

to products that are installed correctly. Improper installation may void this Limited Warranty. Giant strongly suggests that you use a licensed professional who has attended a Giant installation training class before installation may void this Limited Warranty coverage as set out in the table below extended to the original installation of the product remains at the site of the original installation. This Limited Warranty only extended to the product remains at the site of the original installation. This Limited Warranty only extends to the first / original installation of the product is moved or out in the table below extends to the first / original installation of the product is moved or interval. The Giant Standard Limited Warranty covers any defects in materials or workmanship when the product is installed and operated according to Giant written installation instructions, subject to the terms writhin this Limited Warranty document. This Limited Warranty applies only reinstalled at a new location What is covered?

How long does warranty coverage last?

		Period of Coverage (from date of purchase)	
tem	Residential Applications	If used for both residential water heating and space heating purposes	Commercial Applications
Heat Exchanger	10 years (1)	5 years (2)	3 years
Tank	6 years (1)	1 year	1 year
All Other Parts and Components	3 years	3 years	3 years
Reasonable Labor		1 year	

- 1) For residential applications, the period of coverage is reduced to three (3) years on the heat exchanger and one (1) year on the tank from date of purchase when used as a recirculating water heater within a hot water recirculation loop, where the water heater is in series with a recirculation system and all recirculating water flows through the water heater, and where an aquastat/thermostat, timer, or an on-demand recirculation system is not incorporated. A system that incorporates a continuous recirculation due to timer settings, excessive heat loss of the loop or aquastat/thermostat setting will be treated as a continuous recirculation system and have a reduced warranty of three (3) years on the heat exchanger and one (1) year on the tank. On-demand recirculation is defined as a hot water recirculation good or system that utilizes existing hot and cold lines or a dedicated return line, and only activates when domestic hot water is used.
 - Commercial applications incorporating any type of recirculation has a reduced warranty period of three (3) years on the heat exchanger.
 - Domestic hot water must be heated directly within the water heater. When combined with domestic hot water production, the water heater may be connected to provide space heating either directly for distributing heated fluid to either a fan coil or similar appliance for space heating purposes. 3)

What will Giant do?

of the labor warranty period. All repair parts all repairs or replacements must be performed by a licensed professional that is properly trained, qualified, or licensed to of the type of repair. Replacement of the product may be authorized by Giant only at its sole discretion. Giant does not authorize any person or company to assume for it any obligation or liability in connection with the replacement of the product. If Giant determines that repair of a product is not possible, Giant may replace the product with a comparable product at Giant will repair or replace the covered product or any part or component that is defective in materials or workmanship as set forth in the above table. Giant will pay reasonable labor charges associated with the repair or replacement of any such part or component during the term Glant's sole discretion. If a component or product returned to Glant is found to be free of defects in material or workmanship, or damaged by improper installation or damaged during return shipping, the warranty claim for product, parts, and labor may be denied

How do I get service?

You must contact a licensed professional for the repair of a product under this Limited Warranty. For the name of a licensed professional, please contact your place of purchase, visit the Giant website (www.giantinc.com), call Giant at 1-800-363-9354, or write to Giant at 40 Lessge Avenue, Montreal-East (Oc) H1B 5H3. Proof of purchase is required to obtain warranty service. You may show proof of purchase with a dated sales receipt, or by registering within thirty (30) days of purchasing the product. Receipt of Registration by Giant will constitute proof-of-purchase for this product. Registration naw home construction may be verified with a copy of the closing papers provided by the initial home buyer. However, registration is not necessary in order to validate this Limited Warranty.

Improper maintenance (such as but not limited to scale build-up, freeze damage, or vent blockage)

Problems or damage due to fires, flooding, electrical surges, freezing, or any acts of God

Any other cause not due to defects in materials or workmanship

Incorrect sizing Water quality

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What is not covered?

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

- Accident, abuse, or misuse
- Alteration of the product or any component part
 - Misapplication of this product
- Improper installation
- Product being installed in a corrosive environment
 - Condensate damage

 - Improper venting
- Incorrect gas type
- Incorrect gas or water pressure pan

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

Limitations on warranties

No one is authorized to make any other warranties on behalf of Giant Factories Inc. 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. Any implied warranties of merchantability and fitness arising under state or provincial law are limited in duration to the period of coverage provided by this Limited Warranty, unless the period provided by state or provincial law is less. Some provinces or states do not allow limitations on how long an implied Limited Warranty lasts, so the above limitation may not apply to you. Giant shall not be liable for indirect, incidenty, unders special, consequential, or other similar damages that may arise, including lost profits, property damage, personal injury, loss of use, inconvenience, or liability arising from improper installation, service, or use. Some provinces or states do not allow the exclusion or limitation of incidental or consequential damages, 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 one province (or state) to the next www.giantinc.com ta, ₹

HIS WARRANTY IS VALID FOR U.S. INSTALLATIONS ONLY

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 ciroriginal unit purchased. If due to some extremely unusual cirorumstance, a replacement water heater or component part is found by our inspection and testing department to be defective, another heater or component part will be supplied to fulfil 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 the water heater is installed in other than a single family dwelling, the tank warranty is limited to ONE (1) year. If an exact replacement is not available, the manufacturer reserves the right to furnish a comparable model water heater; however, a surcharge will be applied for any additional component(s) incorporated in the replacement water heater. The warranty reply card must be compared 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 SIX (6) years 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

- To defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with the printed instructions.
- If the installation does not conform to CSA and/or ETL Standards as well as any applicable national or local building
- To any damage or failure caused by abuse, accident, fire, floods, freezing or other acts of God.

STANDARD BASIC LIMITED WARRANTY ON RESIDENTIAL GAS WATER HEATERS

To any damage or failure caused by operating the heater without an approved pressure and temperature relief valve

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- 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 and/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 and 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.
- 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 and/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 and/or a check valve in the municipal water supply system in a single family dwelling.
 - 12) If the heater is installed outside of 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, option 1. We suggest that prior to calling the factory, that you make sure to have the model number and 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 caim. Failure to produce this documentation will result in the lesser or the warranty periods being offered. In order to avoid any confusion and/or disputes, we suggest that the warranty card be installation.

NOTE :	