



Commercial Gas-Fired Water Heaters

Installation

Start-Up

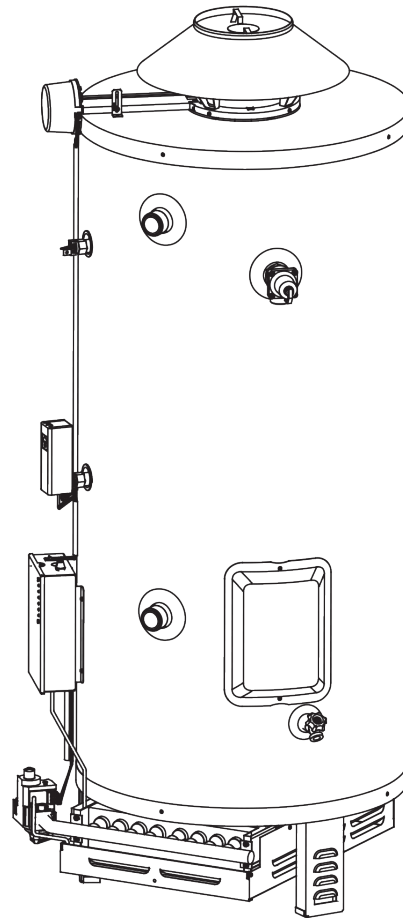
Maintenance

Parts

Warranty

CG*N73 / CG***N65 Models**

A Suffix of "X" Denotes Model Set for
Low NOx Operation



**AUDI
ANRI
MEMBER**

⚠ DANGER

This manual must only be used by a qualified installer / service technician. Read all instructions in this manual before installing. Perform steps in the given order. Failure to do so could result in substantial property damage, severe personal injury, or death.

⚠ WARNING

Improper installation, adjustment, alteration, service, or maintenance could void product warranty and cause property damage, severe personal injury, or death.

NOTICE

HTP reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

The surfaces of these products contacted by potable (consumable) water contain less than 0.25% lead by weight as required by the Safe Drinking Water Act, Section 1417.

NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.

⚠ WARNING

IF THE INFORMATION IN THIS MANUAL IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT, CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR LOSS OF LIFE. DO NOT STORE 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.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department. Installation and service must be provided by a qualified installer, service agency, or the gas supplier.

FOR YOUR SAFETY, READ BEFORE LIGHTING

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

- A. This appliance is equipped with an ignition device which automatically lights the pilot. **DO NOT** try to light the pilot 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:

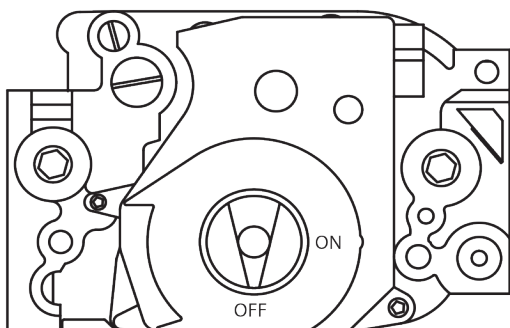
- **DO NOT** try to light any appliance.
- **DO NOT** touch any electric switch.
- **DO NOT** use any phone in your building.

- From a neighbour's phone, immediately call your gas supplier. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

- C. **DO NOT** use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

LIGHTING INSTRUCTIONS

1. **STOP!** Read the safety information above on this label.
2. Set the thermostat to its lowest setting.
3. Turn off all electric power to the appliance.
4. Turn the gas control knob clockwise ↻ to "OFF".






Main Gas Valve
Knob Shown in
"OFF" Position

5. This appliance is equipped with an ignition device which automatically lights the pilot. **DO NOT** try to light the pilot by hand.
6. Wait five (5) minutes to clear out any gas. If you then 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 on all electric power to the appliance.
8. Turn the gas control knob counterclockwise ↻ to "ON".
9. Set the thermostat to the desired setting.
10. If the appliance will not operate, follow the instructions *To Turn Off Gas To Appliance* and call a qualified service technician or the gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to the lowest setting.
2. Turn the gas control knob clockwise ↻ to "OFF".
3. Turn off all electric power to the appliance.

SPECIAL ATTENTION BOXES
The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important product information.
 DANGER
DANGER indicates an imminently hazardous situation which, if not avoided, will result in serious personal injury or death.
 WARNING
WARNING indicates a potentially hazardous situation which, if not avoided, could result in personal injury or death.
 CAUTION
CAUTION indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor personal injury.
CAUTION
CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.
NOTICE
NOTICE is used to address practices not related to personal injury.

Foreword

This manual is intended to be used in conjunction with other literature provided with the water heater. This includes all related control information. It is important that this manual, all other documents included in this system, and additional publications including the *Code for the Installation of Heat Producing Appliances* and *National Fuel Gas Code - ANSI Z223.1* (latest versions), be reviewed in their entirety before beginning any work.

Installation should be made in accordance with the regulations of the Authority Having Jurisdiction, local code authorities, and utility companies which pertain to this type of water heating equipment.

Authority Having Jurisdiction (AHJ) – The AHJ may be a federal, state, local government, or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department or health department, building official or

electrical inspector, or others having statutory authority. In some circumstances, the property owner or his/her agent assumes the role, and at government installations, the commanding officer or departmental official may be the AHJ.

NOTE: HTP, Inc. reserves the right to modify product technical specifications and components without prior notice.

For the Installer

This water heater must be installed by qualified and licensed personnel. The installer should be guided by the instructions furnished with the water heater, and by local codes and utility company requirements. In the absence of local codes, preference should be given to the *National Fuel Gas Code - ANSI Z223.1*, latest version.

Installations Must Comply With:

Local, state, provincial, and national codes, laws, regulations, and ordinances.


The latest version of the *National Fuel Gas Code, ANSI Z223.1*, from American Gas Association Laboratories, 8501 East Pleasant Valley Road, Cleveland, OH 44131.


In Canada - *CGA No. B149* (latest version), from Canadian Gas Association Laboratories, 55 Scarsdale Road, Don Mills, Ontario, Canada M3B 2R3. Also, *Canadian Electrical Code, C 22.1*, from Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6.


Code for the Installation of Heat Producing Appliances (latest version) from American Insurance Association, 85 John Street, New York, NY 11038.

The latest version of the *National Electrical Code, NFPA No. 70*.

NOTE: The gas manifold and controls met safe lighting and other performance criteria when undergoing tests specified in *ANSI Z21.10.3* - latest edition.

 **DANGER**





 **Vapors from flammable liquids will explode and catch fire causing death or severe burns.**
Do not use or store flammable products such as gasoline, solvents or adhesives in the same room or area near the water heater.
Keep flammable products:
1. far away from heater,
2. in approved containers,
3. tightly closed and
4. out of children's reach.

Water heater has a main burner and pilot flame. The pilot flame:
1. which can come on at any time and
2. will ignite flammable vapors.
Vapors:
1. cannot be seen,
2. are heavier than air,
3. go a long way on the floor and
4. can be carried from other rooms to the pilot flame by air currents.

Installation:
Do not install water heater where flammable products will be stored or used unless the main burner and pilot flames are at least 18" above the floor. This will reduce, but not eliminate, the risk of vapors being ignited by the main burner or pilot flame.

Read and follow water heater warnings and instructions. If owners manual is missing, contact the retailer or manufacturer.

 **DANGER**



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

Table of Contents

Part 1 - General Safety Information

- A. Improper Combustion
- B. Gas
- C. When Servicing the Water Heating System
- D. Heater Water
- E. Freeze Protection
- F. Water Temperature Adjustment
- G. Water Chemistry Requirements
- H. What's in the Box
- I. Optional Equipment

Part 2 - Installation Instructions

- A. Locating the Water Heater
- B. Minimum Clearances
- C. Combustion and Ventilation Air Supply
 - 1. Requirements for Unconfined Spaces
 - 2. Requirements for Confined Spaces
 - In the US (refer to ANSI Z223.1/NFPA 54)
 - In Canada (refer to CAN/CSA B149.1)
 - 3. Louvers and Grilles
 - 4. Corrosive Atmospheres
- D. Venting
 - 1. Automatic Flue Damper / Draft Hood Assembly
 - 2. Venting System
 - 3. Optional Side Wall Power Vent Kits
- E. Water Piping
 - 1. Temperature and Pressure Relief Valve
 - 2. Pressure Build-Up in a Water System
 - 3. Filling the Water Heater
- F. Gas Connections
- G. Combination Space Heating and Potable Water Heating
- H. Wiring

Part 3 - Operating Instructions

- A. Lighting the Water Heater
- B. Draft Hood Operation
- C. Water Temperature Regulation
- D. Out of Fuel

Part 4 - General Maintenance

- A. Housekeeping
- B. Condensation
- C. Main Burner and Pilot
- D. Cleaning Out the Water Heater
- E. Temperature and Pressure Relief Valve
- F. Venting System Inspection
- G. Anode
- H. Draining the Water Heater
- I. Vacation
- J. Getting Service for the Water Heater

Part 5 - Troubleshooting Guide

- Limited Warranty
- Maintenance Notes
- Customer Installation Record Form

For Your Records

Write the Product Model and Serial Numbers:

Model # _____

Serial # _____

These numbers are listed on the product ratings label.

Keep this manual and information for future reference.

Part 1 - General Safety Information

WARNING

Installer - Read all instructions in this manual before installing. Perform steps in the given order.

User - This manual is for use only by a qualified heating installer / service technician. Have this water heater serviced / inspected annually by a qualified service technician.

FAILURE TO ADHERE TO THE GUIDELINES ON THIS PAGE CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.

NOTE: If the water heater is exposed to the following, do not operate. Immediately call a qualified service technician.

1. Fire
2. Damage
3. Water

Failure to follow this information could result in property damage, severe personal injury, or death.

NOTICE

UNCRATING THE WATER HEATER - Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

WARNING

DO NOT USE THIS WATER HEATER IF ANY PART HAS BEEN SUBMERGED IN WATER. Immediately call a qualified service technician. The water heater **MUST BE** replaced if it has been submerged. Attempting to operate a water heater that has been submerged could create numerous harmful conditions, such as a potential gas leakage causing a fire and/or explosion, or the release of mold, bacteria, or other harmful particulates into the air. Operating a previously submerged water heater could result in property damage, severe personal injury, or death.

NOTE: Water heater damage due to flood or submersion is considered an Act of God, and IS NOT covered under product warranty.

NOTE: Obey all local codes. Obtain all applicable permits before installing the water heater.

NOTE: Install all system components and piping in such a manner that does not reduce the performance of any fire rated assembly.

Altering any HTP, Inc. water heater with parts not manufactured by HTP, Inc. **WILL INSTANTLY VOID** the water heater warranty and could result in property damage, personal injury, or death.

This water heater has been designed to heat potable water **ONLY**. Using this water heater to heat non-potable fluid **WILL VOID** product warranty, and could result in property damage, personal injury, or death.

CAUTION

Do not use this water heater for anything other than its intended purpose (as described in this manual). Doing so could result in property damage and **WILL VOID** product warranty.

CAUTION

High heat sources (sources generating heat 100°F / 37°C or greater, such as stove pipes, space heaters, etc.) may damage plastic components of the water heater as well as plastic vent pipe materials. Such damages ARE NOT covered by warranty. It is recommended to keep a minimum clearance of 8" from high heat sources. Observe heat source manufacturer instructions, as well as local, state, provincial, and national codes, laws, regulations and ordinances when installing this water heater and related components near high heat sources.

A. Improper Combustion

WARNING

Do not obstruct the flow of combustion and ventilating air. Adequate air is necessary for safe operation. Obstructing the flow of combustion or ventilating air could result in property damage, serious personal injury, or death.

B. Gas

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

C. When Servicing the Water Heating System

WARNING

Be sure to disconnect electrical power before performing service. Failure to do so could result in electrical shock, property damage, serious personal injury, or death.

To avoid electric shock, disconnect electrical supply before performing maintenance.

NOTE: When inquiring about service or troubleshooting, reference the model and serial numbers from the water heater rating label.

To avoid severe burns, allow water heater and associated equipment to cool before servicing.

D. Heater Water

Do not use petroleum-based cleaning or sealing compounds in a water heating system. Gaskets and seals in the system may be damaged. This can result in substantial property damage.

Do not use "homemade cures" or "patent medicines". Damage to the water heater, substantial property damage, and/or serious personal injury may result.

E. Freeze Protection

NOTE: Consider piping and installation when determining heater location.

CAUTION

Failure of the water heater due to freeze related damage IS NOT covered by product warranty.

WARNING

NEVER use any toxic chemical, including automotive, standard glycol antifreeze, or ethylene glycol made for hydronic (non-potable) systems. These chemicals can attack gaskets and seals in water systems, are poisonous if consumed, and can cause personal injury or death.

F. Water Temperature Adjustment

If the water heater is going to have a set temperature above 120°F, you must use an ASSE 1017 rated mixing valve to avoid severe burns or death from scalding temperatures.

WARNING

Households with small children, disabled, or elderly persons may require a 120°F or lower temperature setting to prevent severe personal injury or death due to scalding.

Approximate Time / Temperature Relationships in Scalds

120°F	More than 5 minutes
125°F	1 1/2 to 2 minutes
130°F	About 30 seconds
135°F	About 10 seconds
140°F	Less than 5 seconds
145°F	Less than 3 seconds
150°F	About 1 1/2 seconds
155°F	About 1 second

Table 1 - Approximate Time / Temperature Relationships in Scalds

G. Water Chemistry Requirements

CAUTION

Chemical imbalance of the water supply may affect efficiency and cause severe damage to the water heater and associated equipment. HTP recommends having water quality professionally analyzed to determine whether it is necessary to install a water softener. It is important that the water chemistry on both the domestic hot water and central heating sides are checked before installing the water heater, as water quality will affect the reliability of the system. In addition, operating temperatures above 135°F will further accelerate the build-up of lime scale and may shorten the service life of the water heater. Failure of a water heater due to lime scale build-up, low pH, or other chemical imbalance IS NOT covered by the warranty.

Outlined below are water quality parameters that need to be met in order for the system to operate efficiently for many years.

Water Hardness

Water hardness is mainly due to the presence of calcium and magnesium salts dissolved in water. The concentration of these salts is expressed in mg/L, ppm, or grains per gallon as a measure of relative water hardness. Grains per gallon is the common reference used in the US water heater industry. Hardness expressed as mg/L or ppm may be divided by 17.1 to convert to grains per gallon. Water may be classified as very soft, slightly hard, moderately hard, or hard based on its hardness number. The minerals in the water precipitate out as the water is heated and cause accelerated lime scale accumulation on a heat transfer surface. This lime scale build-up may result in premature failure of the water heater. Operating temperatures above 135°F will further accelerate the build-up of lime scale and may shorten the service life of the water heater.

Water that is classified as hard and very hard must be softened to avoid water heater failure.

CLASSIFICATION	MG/L OR PPM	GRAINS/GAL
Soft	0 - 17.1	0 - 1
Slightly Hard	17.1 - 60	1 - 3.5
Moderately Hard	60 - 120	3.5 - 7
Hard	120 - 180	7 - 10.5
Very Hard	180 and over	10.5 and over

If the hardness of the water exceeds the maximum level of 7 grains per gallon, the water should be softened to a hardness level no lower than 5 grains per gallon. Water softened as low as 0 to 1 grain per gallon may be under-saturated with respect to calcium carbonate, resulting in water that is aggressive and corrosive.

pH of Water

pH is a measure of relative acidity, neutrality, or alkalinity. Dissolved minerals and gases affect water pH. The pH scale ranges from 0 to 14. Water with a pH of 7 is considered neutral. Water with pH lower than 7 is considered acidic. Water with a pH higher than 7 is considered alkaline. A neutral pH (around 7) is desirable for most potable water applications. **Corrosion damage and tank failures resulting from water pH levels of lower than 6 or higher than 8 ARE NOT covered by warranty.** The ideal pH range for water used in a water heater is 7.2 to 7.8.

Total Dissolved Solids

Total Dissolved Solids (TDS) is a measurement of all minerals and solids dissolved in a water sample. The concentration of TDS is usually expressed in parts per million (ppm).

Water with a high TDS concentration will greatly accelerate lime and scale formation in the hot water system. Most high TDS concentrations precipitate out of the water when heated. This can generate a scale accumulation that will greatly reduce the service life of the water heater.

The manufacturer of the water heater has no control over water quality, especially TDS levels in your system. TDS in excess of 2000 ppm will accelerate lime and scale formation on the element or the heat exchanger. Water heater failure due to TDS in excess of 2000 ppm IS NOT covered by warranty. **Failure of a water heater due to lime scale build-up IS NOT covered by warranty.**

Hardness: Less than 7 grains

Chloride levels: Less than 100 ppm

pH levels: 6 - 8

TDS: Less than 2000 ppm

Sodium: Less than 20 mg/L

H. What's in the Box

Components included with the water heater:

- Low Profile Automatic Flue Damper
- Intelligent LED Diagnostic System
- Temperature and Pressure Relief Valve
- Installation Manual and Warranty

Remove all sides of the shipping crate to allow the heater to be moved into its installation location.

CAUTION

COLD WEATHER HANDLING - If the water heater has been stored in a very cold location (BELOW 0°F) before installation, handle with care until the components come to room temperature. Failure to do so could result in damage to the water heater.

I. Optional Equipment

Optional equipment available from HTP (and Part #):

High Altitude Kit

- 125kBTU Model (8800P-024)
- 150kBTU Model (8800P-025)
- 199.9kBTU Model (8800P-026)
- 250kBTU Model (8800P-027)
- 300kBTU Model (8800P-028)

Power Venter

- 125kBTU Model (6060-200)
- 150-300kBTU Model (6060-201)

Vent Termination Kit

- 125kBTU Model (6060-202)
- 150-300kBTU Model (6060-203)

Part 2 - Installation Instructions

CAUTION

Carefully consider installation when determining heater location. Please read the entire manual before attempting installation. Failure to properly take factors such as heater venting, piping, condensate removal, and wiring into account before installation could result in wasted time, money, and possible property damage and personal injury.

A. Locating the Water Heater

WARNING

This water heater IS NOT design certified for installation in a manufactured (mobile) home or for installation outdoors. Failure to follow this warning could result in property damage, severe personal injury, or death.

This water heater should be located in a clean, dry location, as close as possible to the chimney and to the main use of hot water. This location must not be subject to freezing temperatures. Make sure the cold water piping is not located directly above the main gas valve or any other electrical control. This will prevent water and condensation from dripping on the main gas valve during installation and operation.

The water heater should be positioned so there is easy access to the main gas valve, flue damper, junction box, temperature and pressure relief valve, and drain valve. Space must be provided at the front of the water heater so that the burner tray assembly can slide out for service.

All water heaters will leak. The manufacturer, based on national building codes, has given the necessary instructions to prevent damage to the building. Under no circumstances is the manufacturer to be held liable for any water damage in connection with this water heater. See Figure 13 for proper installation.

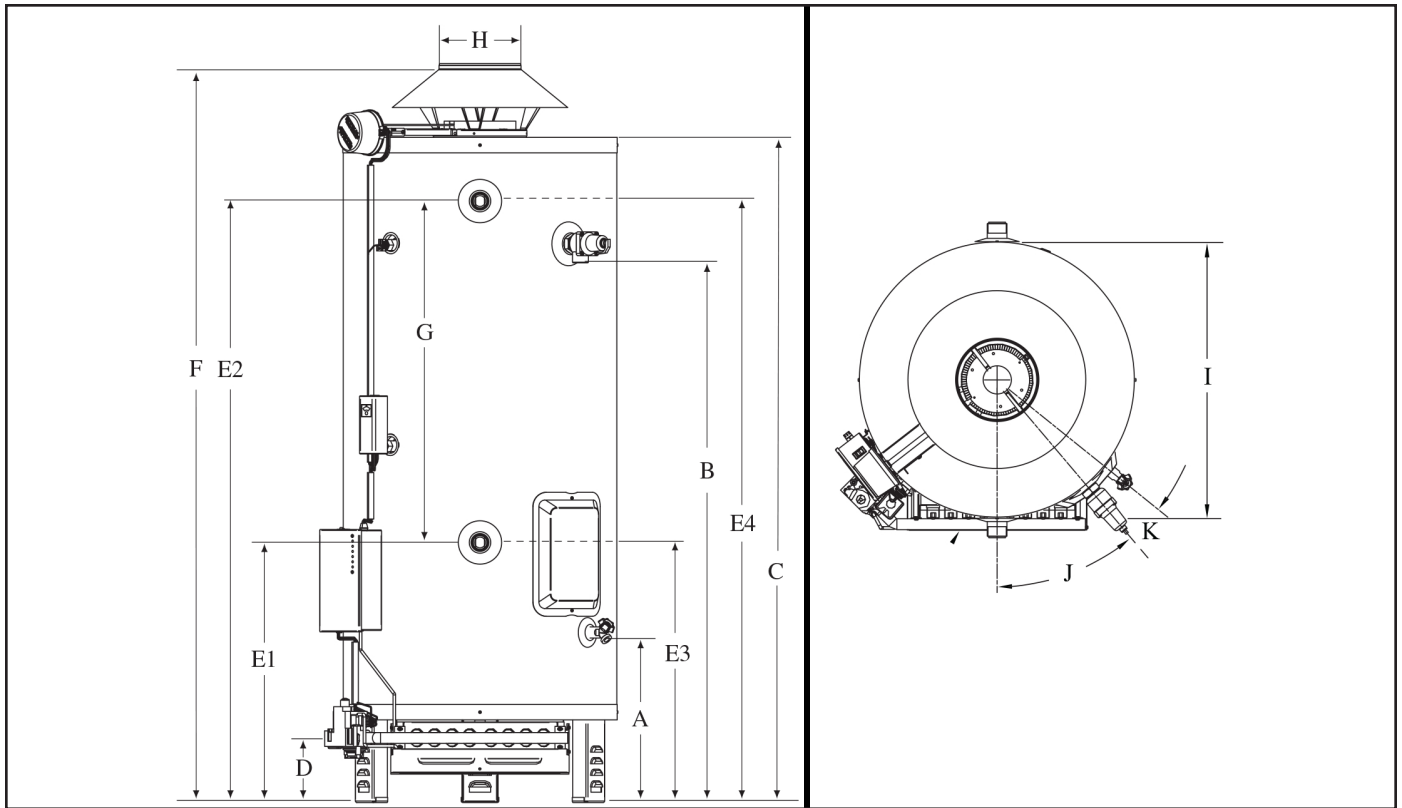


Figure 1 - Water Heater Dimensions - NOTE: All Dimensions Are Approximate

Model	Storage Capacity Gallons (Liters)			Fuel Type	Input (BTU)	Recovery 90°F / 50°C Gallons (Liters) Per Hour			Shipping Weight Lbs. (Est.)		
CG125N73	72 (272)			NG	125,000	135 (511)			429		
CG150N73	70 (265)				150,000	162 (613)					
CG199N73(X)	68 (257)				199,900	215 (814)					
CG250N65	60 (227)				250,000	269 (1018)			465		
CG300N65	55 (208)				300,000	323 (1223)					
Model Dimensions in Inches											
Model	A	B	C	D	E1	E2	F	H	I	J	K
CG125N73	15 3/4	52 1/2	64 1/8	5 7/8	25 1/4	58 1/4	69 1/4	5	26 1/2	40.3°	51.2°
CG150N73							70 7/8	6			
CG199N73(X)								7			
CG250N65		52 1/8					71 5/8	8			
CG300N65											

Table 2 - Specifications and Dimensions - NOTE: All Water Heaters Shipped to Operate on Natural Gas - A suffix of "X" Denotes Model Set for Low NOx Operation

WARNING

The water heater must be located close to a suitable free-flowing floor drain. Where a floor drain is not adjacent to the water heater, a suitable drain pan must be installed under the water heater. See Figure 13 for proper installation. The drain pan should be at least 4" (10.2 cm) larger than the diameter of the water heater, and at least 1" (2.5 cm) deep, providing access to the drain valve. This pan must not restrict the flow of ventilation and combustion air. This pan must be piped to a suitable drain to prevent damage to property in the event of a water leak from the piping, the temperature and pressure relief valve, or the water heater. Failure to follow this warning could result in property damage, severe personal injury, or death.

This water heater is approved for installation on either a combustible or non-combustible floor. However, should this water heater be installed directly on carpeting, the carpeting must be protected by a wood or metal panel beneath the water heater. This panel must extend at least 3" (7.6 cm) beyond the width and depth of the water heater. Should the water heater be installed in an alcove or closet, the entire floor area must be covered by the panel. The panel must be strong enough to carry the weight of the water heater when it is full of water (CG-73 = 1040 lbs., CG-65 = 1010 lbs.)

CAUTION

Locate the water heater where any leakage from the relief valve, related piping, tank, or connections will not result in damage to surrounding areas or lower floors of the building. The water heater should be located near a floor drain or installed in a drain pan. Leakage damages ARE NOT covered by warranty.

Failure of the water heater or components due to incorrect operating conditions IS NOT covered by product warranty.

B. Minimum Clearances

The minimum clearances from combustibles for this water heater are: 6" (15.2 cm) from the sides and rear, 24" (61 cm) from the front, and 18" (45.7 cm) from the top.

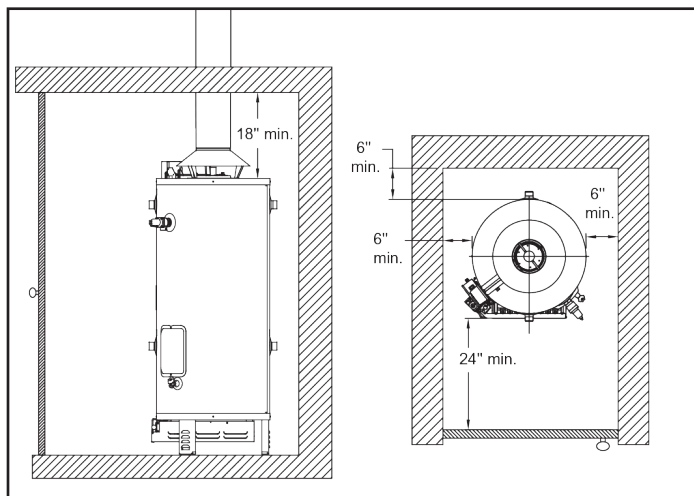


Figure 2 - Minimum Service Clearances

NOTE: If you do not provide the minimum clearances shown in Figure 2 it might not be possible to service the heater without removing it from the space.

C. Combustion and Ventilation Air Supply

In order for the water heater to operate properly, it must be supplied with an uninterrupted flow of clean combustion and ventilation air. The area around the water heater must always be kept clear so that the flow of combustion and ventilation air is not blocked. An inadequate supply of air to the water heater will produce a bright yellow burner flame, causing sooting in the combustion chamber, on the burners, and in the flue tubes. This can result in damage to the water heater and serious bodily injury if not corrected.

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

1. Requirements for Unconfined Spaces

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

2. Requirements for Confined Spaces

A confined space is an area where the volume is less than 50 cubic feet for each 1,000 BTU/H of the total input rating for all gas appliances installed in that space. Water heaters installed in confined spaces require additional combustion and ventilation air. This can be provided in two ways:

In the US (refer to ANSI Z223.1/NFPA 54)

a. All Air From Inside the Building

The confined space shall be provided with two permanent openings communicating directly with one or more rooms of sufficient volume, so that the combined volume of all spaces meets the criteria for an unconfined space. The total input rating of all gas appliances installed in the combined space shall be considered in making this determination.

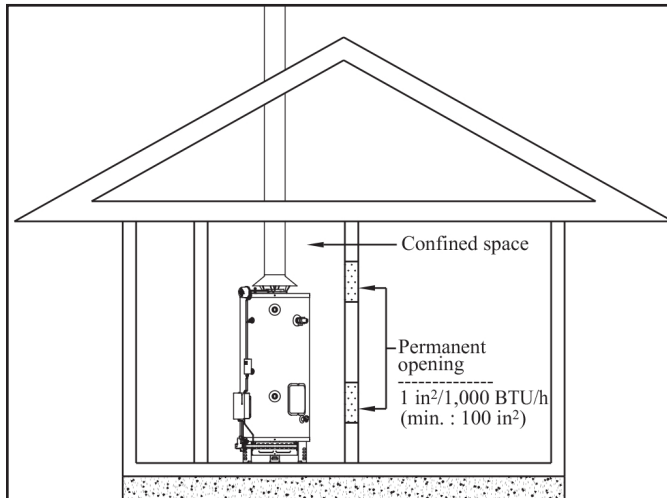


Figure 3 - Confined Space - All Air from Inside Building

Each opening shall have a minimum free area of one (1) square inch per 1,000 BTU/H (22cm²/kW) of the total input rating of all gas appliances in the confined space, but not less than one hundred (100) square inches (645.16 cm²). One opening shall commence within six (6) inches (15.2 cm) of the top and one within six (6) inches (15.2 cm) of the bottom of the enclosure.

b. All Air From Outdoors

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

1) When communicating directly with the outdoors, each opening shall have a minimum free area of one (1) square inch per 4,000 BTU/H (5.5 cm²/kW) of the total input rating of all gas appliances in the enclosure. See Figure 4.

CAUTION

When drawing combustion air from the outside into the mechanical room, care must be taken to provide adequate freeze protection.

WARNING

Failure to provide an adequate supply of fresh combustion air can cause poisonous flue gases to enter the living space, resulting in severe personal injury or death.

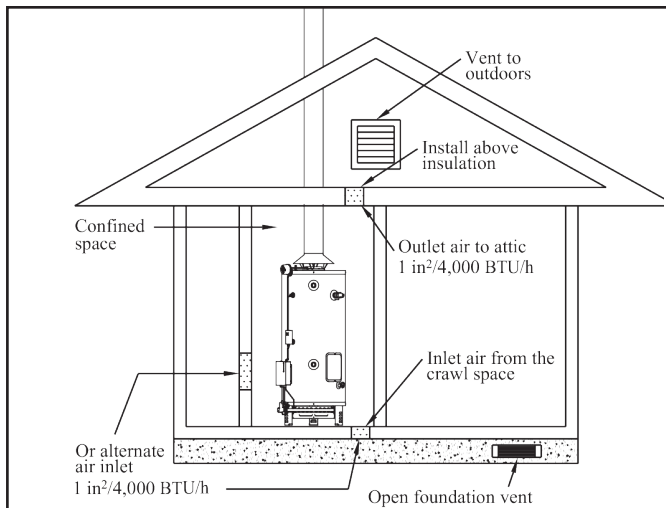


Figure 4 - Confined Space - Communicating Directly with Outdoors

2) When communicating with the outdoors through vertical ducts, each opening shall have a minimum free area of one (1) square inch per 4,000 BTU/H (5.5 cm²/kW) of the total input rating of all gas appliances in the enclosure. See Figure 5.

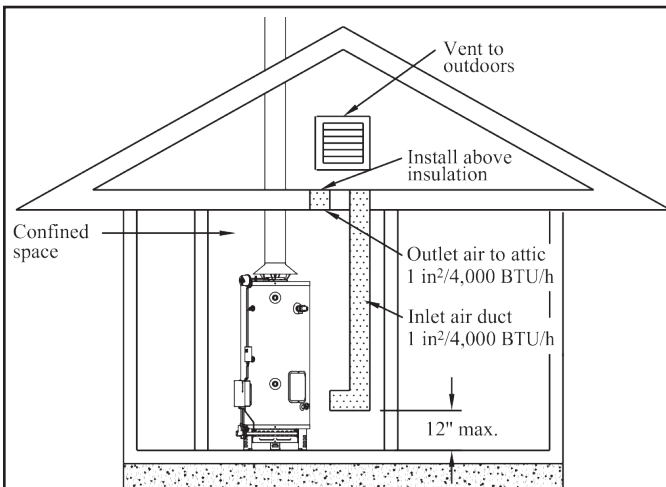


Figure 5 - Confined Space - Communicating Outdoors through Vertical Ducts

3) When communicating with the outdoors through horizontal ducts, each opening shall have a minimum free area of one (1) square inch per 2,000 BTU/H (11 cm²/kW) of the total input rating of all gas appliances in the enclosure. See Figure 6.

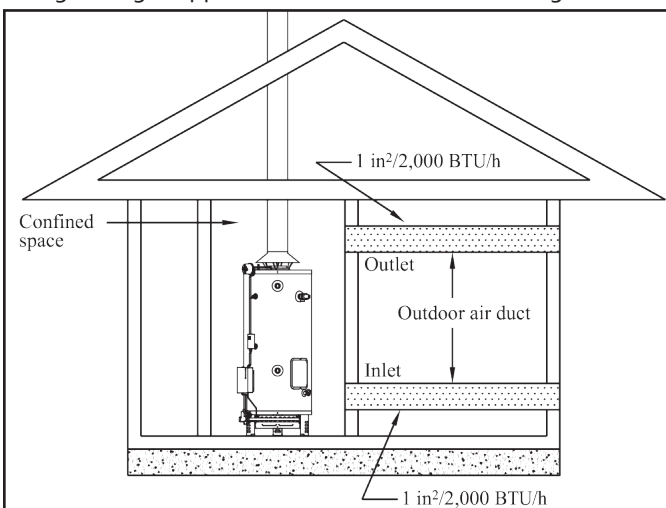


Figure 6 - Confined Space - Communicating Outdoors through Horizontal Ducts

When ducts are used, they shall be of the same cross-sectional area as the free area of the openings to which they connect. The minimum short side dimension of rectangular air ducts shall not be less than three (3) inches (7.6 cm).

In Canada (refer to CAN/CSA B149.1)

a. All Air From Inside the Building

The confined space shall be provided with one opening of one (1) square inch per 1,000 BTU/H (22 cm²/kW) communicating directly with one or more rooms of sufficient volume, so that the combined volume of all spaces meets the criteria for an unconfined space for all the appliances installed in that confined space. See Figure 7.

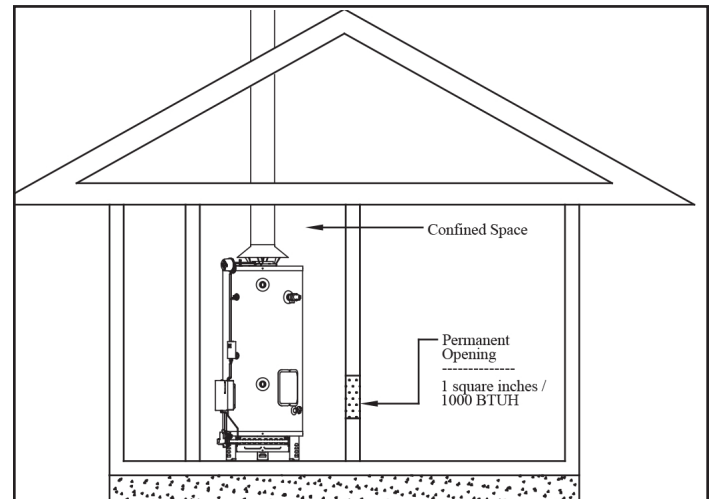


Figure 7 - Confined Space - All Air from Inside Building

b. All Air From Outdoors

An air supply shall be provided with one opening that communicates directly with the outdoors by means of a duct. This duct shall be sized according to CAN/CSA B149.1 and terminate within one (1) foot above and within two (2) feet horizontally from the burner level of the appliance having the largest input. See Figure 8.

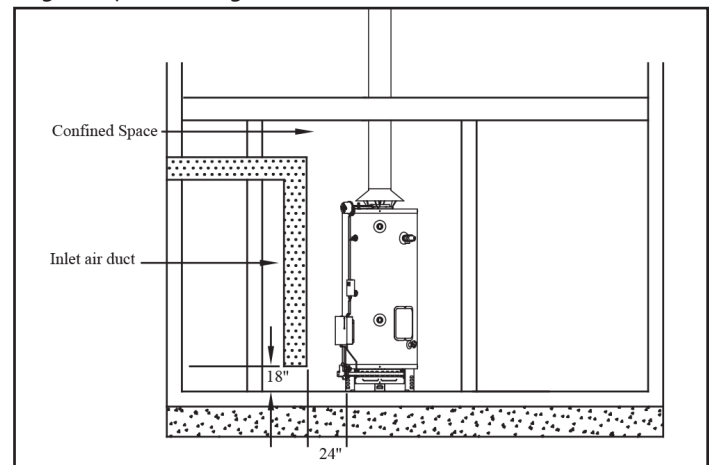


Figure 8 - Confined Space - All Air from Outdoors through Duct

3. Louvers and Grilles

In calculating free area for ventilation and combustion air supply openings, consideration must be given to the blocking effect of louvers, grilles, or screens protecting the openings. Screens must not be smaller than ¼" (6.4 mm) mesh. If the free area through a particular design of louver or grille is known, it should be used in calculating the size of opening required to provide the free area specified. If the design and free area is not known, it

may be assumed the wood louvers and grilles will allow 20-25% free area and metal louvers and grilles will allow 60-75% free area. Louvers and grilles must be installed in the open position or interconnected with the water heater so that they are opened automatically during water heater operation.

4. Corrosive Atmospheres

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

D. Venting

⚠ DANGER

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

1. Automatic Flue Damper / Drafthood Assembly

The flue damper/drafthood assembly has been shipped from the factory in a separate box attached to this water heater. Before installing the flue damper/drafthood assembly, verify that it is the correct model for this water heater (the CG125N73 uses a 5" flue damper, all other 73 gallon models use a 6" flue damper; CG250N65 uses a 7" flue damper, all other 65 gallon models use an 8" flue damper). If the wrong assembly has been shipped or is missing completely, immediately contact the dealer where the water heater was purchased. Never operate this water heater without the manufacturer's flue damper/drafthood assembly installed.

⚠ WARNING

DO NOT modify the flue damper / drafthood assembly in any way. **DO NOT** turn on the electrical power to the water heater until the flue damper / drafthood assembly is installed. Failure to follow these instructions can result in property damage, personal injury, or death.

When installing the water heater, make sure the location allows clear viewing of the flue damper. When the damper is in the open position, the paddle is perpendicular to the water heater. The flue damper must be in an open position when the water heater's burners are operating.

To install the flue damper/drafthood assembly, use the following instructions and secure all pieces with the provided sheet metal screws. See Figure 9.

1. Remove the flue damper/drafthood assembly from its packaging.
2. Center the assembly over the flue collector outlet.

3. Rotate the assembly so that the wire connector on the water heater can plug into the flue damper motor connector.
4. Use the wire connector to secure the assembly to the flue connector.
5. Install the flue damper support leg on the assembly.
6. Secure the assembly to the top of the water heater.
7. Plug the wire connector on the water heater into the flue damper motor connector.

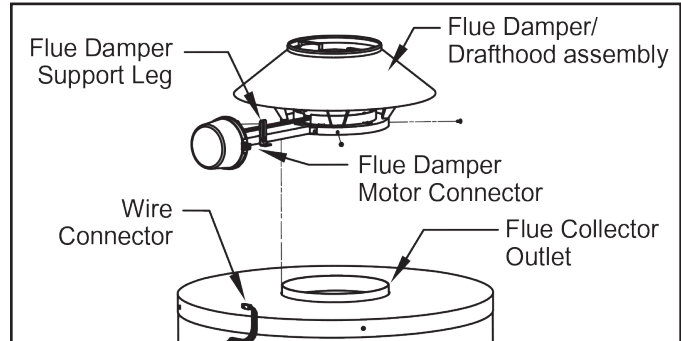


Figure 9 - Flue Damper / Drafthood Assembly

2. Venting System

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

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

- Install the vent pipe in such a way as to avoid any unnecessary bends that could create resistance to the flow of combustion gases.

⚠ WARNING

Breathing Hazard - Carbon Monoxide Gas



- Do not operate heater if flood damaged.
- Install vent system in accordance with local codes and manufacturers installation instructions.
- Do not obstruct heater air intake or exhaust. Support all vent piping per manufacturers installation instructions.
- Do not place chemical vapor emitting products near unit.
- According to NFPA 720, carbon monoxide detectors should be installed outside each sleeping area.
- Never operate the heater unless it is vented to the outdoors.
- Analyze the entire vent system to make sure that condensate will not become trapped in a section of vent pipe and therefore reduce the open cross sectional area of the vent.

LP-304-FR

Breathing carbon monoxide can cause brain damage or death. Always read and understand instruction manual.

- The length of the horizontal vent pipe must not exceed 75% of the vertical vent pipe height and never exceed 20' (6.1 m).
- All horizontal runs must have a minimum rise of $\frac{1}{4}$ " (21 mm/m) per foot of run. See Figure 10.
- All joints must be securely fastened with sheet metal screws or other approved means.
- All single wall vent piping must maintain a minimum of 6" (15.2 cm) of clearance from combustible materials.
- Venting systems made with single wall piping cannot pass through any attic, inside wall, crawl space, confined space, or any floor.
- The vent piping must be accessible for inspection, cleaning, and replacement.

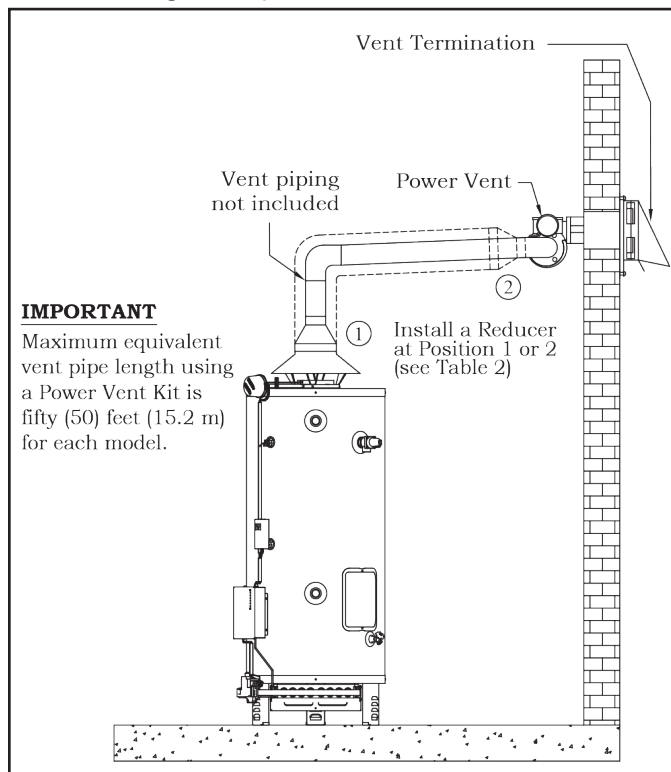


Figure 10 - Power Vent Kit Installation

3. Optional Side Wall Power Vent Kits

⚠ WARNING

When using an optional power vent kit, the power venter must be properly secured against the outside wall. Failure to properly secure the power venter can result in exhaust gas leak, property damage, personal injury, or death.

This water heater is approved for installation with a Tjernlund™ side wall power vent kit. See Figure 10. This kit can be installed as part of a new installation or retrofitted onto an existing installation. The kit consists of a power venter and vent termination assembly. See Table 5 and Figure 12. Vent piping is not included. Before beginning the installation of the power vent kit, make sure that it is the appropriate kit for your model water heater. See Tables 5 and 6. Make sure that the water heater is located so all vent terminal clearances will be respected. See Figure 11. Maximum equivalent vent pipe length is 50' for each model. For complete instructions on the side wall vent kit installation, consult the manual that comes with the kit.

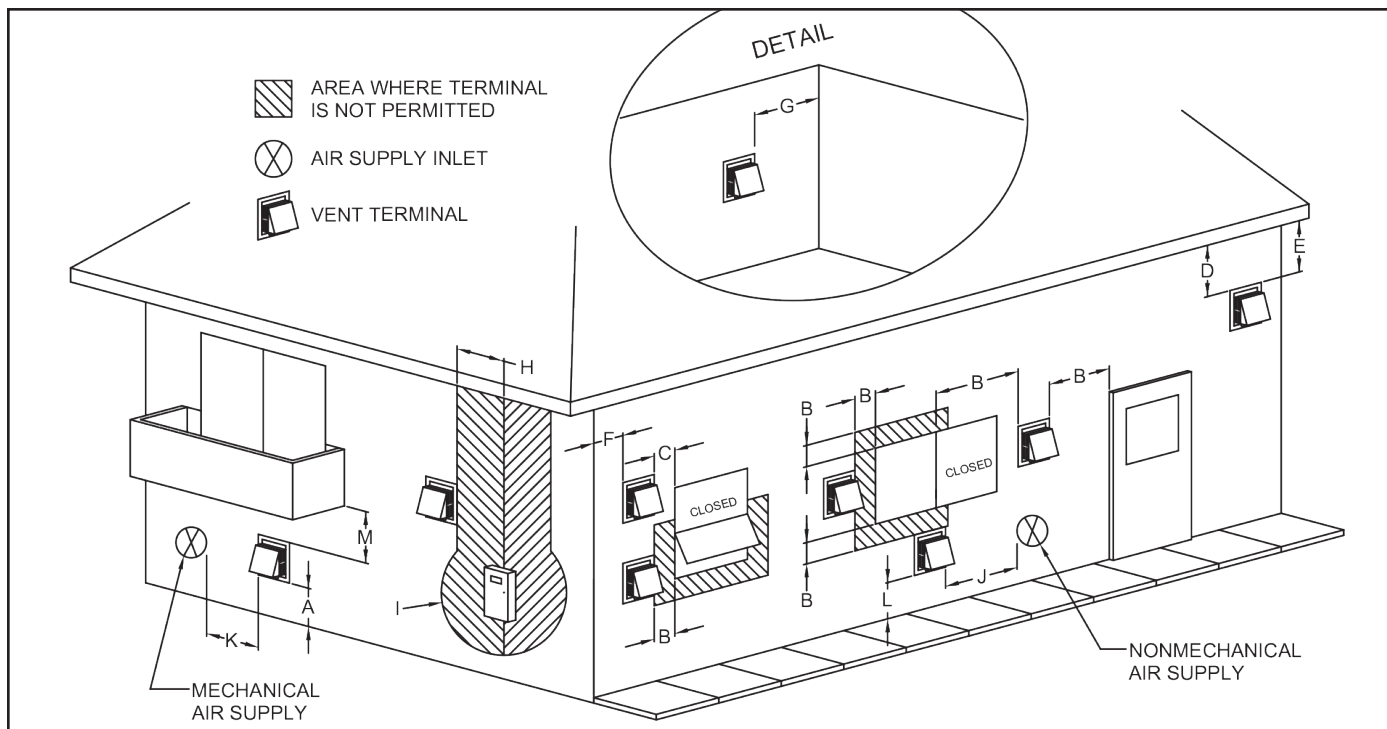


Figure 11 - Side Wall Power Vent Installation Detail

When Using a Power Vent Kit, The Vent Termination Must Have:	US Installations ¹	Canadian Installations ²
A) Clearance above grade, veranda, porch, deck, or balcony	12"	30 cm
B) Clearance to window or door that may be opened	3'	1.2 m below or to the side of opening; 30 cm above opening
C) Clearance to permanently closed window	*	*
D) Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2' from the center line of the terminal	*	*
E) Clearance to unventilated soffit	*	*
F) Clearance to outside corner	*	*
G) Clearance to inside corner	*	*
H) Clearance to each side of center line extended above meter / regulator assembly	3'	*
I) Clearance to service regulator vent outlet	3'	*
J) Clearance to non-mechanical air supply inlet to building or the combustion air inlet to any other appliance	3'	1.2 m below or to the side of opening; 30 cm above opening
K) Clearance to a mechanical air supply inlet	6'	91 cm above if within 3 m horizontally
L) Clearance above paved sidewalk or paved driveway located on public property	7' [†]	2.13 m
M) Clearance under veranda, porch, deck, or balcony	12" [‡]	*

Table 3 - Side Wall Power Vent Termination Requirements

¹In accordance with current ANSI Z223.1 / NFPA 54 National Fuel Gas Code.²In accordance with current CAN/CSA B149.1 National Gas and Propane Installation Code.

*Clearance in accordance with local installation codes and the requirements of the gas supplier.

[†]Vent shall not terminate directly above a sidewalk or paved driveway located between two single family dwellings that serves both dwellings.[‡]Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

Model	Kit #	Motor		Dimensions (Inches)										Vent Hood Rough-In	Inlet / Outlet
		Watts	Amps	A	B	C	D	E	F	G	H	I	J		
CG125N73	1	95	1.26	7 7/8	7	11	4	7 1/2 ^(sq)	7 1/8	13 ^(sq)	8 5/8	7 3/8	11	8 ^(sq)	4
CG150N73 to CG300N65	2	224	1.51	9 1/4	8 1/2	11 1/2	6	8 1/2 ^(dia)		12 ^(sq)	9 1/2	9 1/2	10	9 ^(dia)	6

Table 4 - Power Venter Including Terminal - NOTES: Max vent length based on total of straight vent pipe plus 11' for 6" dia. 90° elbow, 7' for a 4" 90° elbow, 5' for a 6" 45° elbow, 4' for a 4" dia. 45° elbow, 4' for a 8" to 6" reducer, and 5' for a 6" to 4" reducer.

	Power Venter (Part #)	Vent Termination (Part #)
Kit #1	6060-200	6060-202
Kit #2	6060-201	6060-203

Table 5 - Power Venter and Vent Termination Part Numbers

Water Heater Model	Kit #	Draft Hood Outlet	Vent Size	Vent Adapter	Vent Reducer Location
CG125N73	1	5"	4"	5"-4"	1
CG150N73	2	6"	6"	Not Req.	-
CG199N73(X)	2	6"		7"-6"	1
CG250N65	2	7"			
CG300N65	2	8"		8"-6"	

Table 6 - Vent Sizing, by Model Number

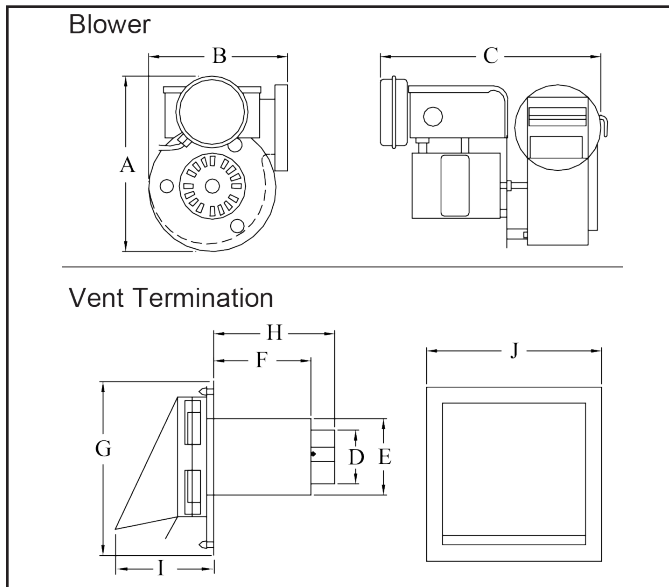


Figure 12 - Power Venter and Vent Termination

NOTE: Vent pipe is not included with the water heater.

WARNING

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

E. Water Piping

Refer to Figure 13 for a typical installation. Use of this layout should provide a trouble-free installation for the life of the water heater. Before making the plumbing connections, locate the COLD water inlet and the HOT water outlet. These fittings are both 1 1/2" NPT male thread. 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 service is required.

NOTE: It is recommended to use dielectric unions when connecting to the water heater.

When assembling the hot and cold piping, use food grade 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 warranty.

1. Temperature and Pressure Relief Valve

WARNING

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

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

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

A discharge line must be installed into the relief valve. The discharge line:

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

2. Pressure Build-Up in a Water System

When the water heater operates, the heated water expands creating a pressure build-up. This is a natural function and is one of the reasons for installing a temperature and pressure relief valve. If the cold water supply line has a built-in water meter, check valve, or pressure-reducing valve, a suitable expansion tank must be installed to prevent pressure build-up or water hammer effect. Otherwise, the warranty is void. See Figure 13. An indication of pressure build-up is frequent relief valve discharge. If the relief valve discharges water on a continuous basis, it may indicate a malfunction of the relief valve and a qualified service technician must be called to have the system checked and the problem corrected.

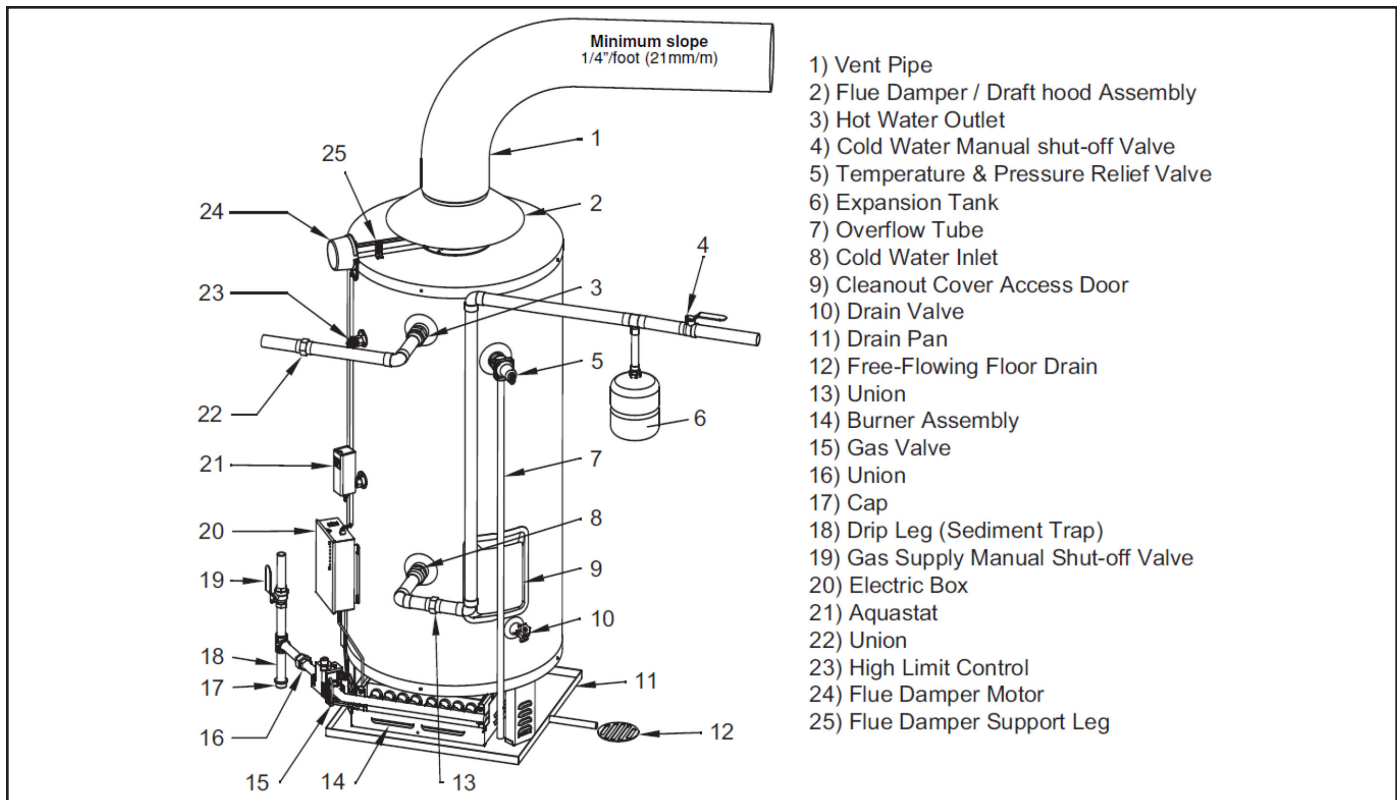


Figure 13 - Typical Installation

3. Filling the Water Heater

CAUTION

NEVER operate the water heater unless it is completely full of water. Failure to follow this instruction can result in premature failure of the water heater. Such failure IS NOT covered by warranty.

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

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

F. Gas Connections

WARNING

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

The gas piping must be installed as indicated in Figure 13. For the correct size of piping for this water heater, consult the National Fuel Gas Code, ANSI Z223.1 / NFPA 54 in the United States, or CAN/CSA B149.1, National Gas and Propane Installation Code in Canada. Only new piping with cleanly cut threads may be used,

together with a suitable sealing compound that is approved for natural and propane gases. It is mandatory that a readily accessible manual shut-off valve be installed in the gas supply line. The gas supply manual shut-off valve must be close to the water heater. A drip leg (sediment trap) must be installed in the gas line ahead of the main gas valve to prevent dirt from entering it. A union must be installed between the main gas valve and the gas supply manual shut-off valve for easy maintenance of the water heater.

WARNING

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

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

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

Make sure that the inlet pressure to the water heater does not exceed 14 inches of water column (3.5 kPa) for natural gases. Pressures in excess of ½ pound per square inch (3.5 kPa) can damage the main gas valve, resulting in a fire or explosion from leaking gas. For purposes of adjustment, the minimum inlet pressure is indicated on the water heater rating plate.

If any pressure testing of the gas line is undertaken at test pressures in excess of ½ psig (3.5 kPa), the water heater and its gas supply manual shut-off valve must be disconnected from the gas supply piping system, and the end of the pipe sealed with a female cap. If the testing is to be undertaken at a

test pressure less than ½ psig (3.5 kPa), the gas supply manual shut-off valve must be closed.

NOTE: The input rating of the appliance is based on installation and operation at sea level up to elevations of 2,000 ft. Low NOx models are certified to operate to 2,000 ft in altitude without adjustment.

⚠ WARNING

High altitude orifices **MUST BE** installed for water heaters operating above 7,500 feet. Failure to follow this instruction can result in property damage, personal injury, or death.

G. Combination Space Heating and Potable Water Heating

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

- All piping and components that are used in the system must be of a nonferrous type suitable for potable water. This also applies to any sealant used.
- The water heater must not be connected to any system that has been previously used for non-potable water heating. This includes piping because existing piping may have been treated with chemicals for cleaning or sealing the system in the past.
- If this water heater is to be used for space heating, make sure all safety codes are respected. Pay special attention to safety valve pressure and expansion tanks.
- Do not use toxic chemicals to clean the potable water heating system.
- Where water temperature in excess of 140°F (60°C) is required for a space heating application, a mixing valve must be installed in the potable side of the system. This will temper the water and reduce the risk of scalding.
- If the incoming water line to the heater is equipped with a check valve, water meter, or pressure-reducing valve, an expansion tank must be installed in the system. This will prevent weeping from the water heater relief valve and premature failure of the heater due to expansion of water during the heating cycle.
- Before acquisition of a water heater for space heating, it is necessary to have the area of intended use sized by a qualified technician. This will ensure that an adequate water heating capacity will be available for both heating and potable water supply, and that the application will meet all local codes and public utility requirements.

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

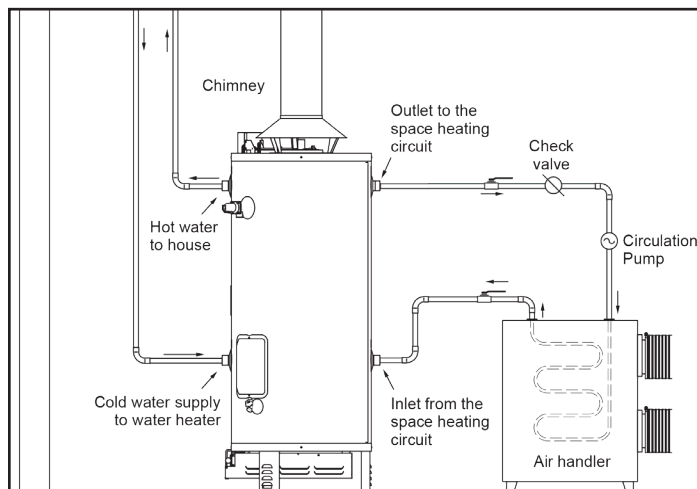


Figure 14 - Water Heater and Air Handler

H. Wiring

⚠ WARNING

This water heater uses an external electrical source for power. It must be electrically grounded in accordance with all local codes, or, in the absence of local codes, the latest edition of the National Electrical Code, ANSI/NFPA 70 in the United States, or CAN/CSA C22.1, Canadian Electrical Code, in Canada. Failure to properly ground the water heater can result in property damage, personal injury, or death.

Before lighting your water heater, check that all of the wires have been installed correctly. See Figure 16. Inspect local wiring for defects before installing this product. Verify that all wiring connections are properly secured. If wiring on the product appears "loose" or damaged when received, immediately call HTP, Inc. customer service. If instructed to replace any of the original wiring, use only 18 AWG type or greater wire approved for 221°F (105°C).

If you are installing a side wall power vent kit, use the following instructions to connect the power venter to the water heater. See Figures 15 and 16.

1. In the electrical box of the water heater, remove the jumper between positions 3 and 4 on the terminal block.
2. Install the wires from the power venter control board to the positions on the terminal block in the electrical box of the water heater.

If the power venter has been bought through a wholesaler, some settings need to be changed on the control board before putting the water heater into operation. The voltage needs to be set at 24 Volts. This can be done by moving the red voltage jumper on the 24V prongs. For detailed instructions on how to adjust the power vent settings, consult the Owner's Manual that comes with the Tjernlund Power Venter.

If the power venter has been bought directly from HTP, the settings have been factory adjusted to match the specifications of the water heater. A label will be affixed on the box stating that it was factory adjusted to HTP commercial gas water heater specifications.

Settings on the Power Venter

Voltage: 24 Volts
Pre-Purge: 0 sec.
Post-Purge: 2 min.

Diagram illustrating the wiring connections for the power vent control board to the terminal block in the electrical box of the water heater.

Legend:

- To install
- To remove

Connections:

- Terminal 1 (Power vent control board) connects to Terminal 1 (Terminal block).
- Terminal 2 (Power vent control board) connects to Terminal 2 (Terminal block).
- Terminal 3 (Power vent control board) connects to Terminal 3 (Terminal block).
- Terminal 4 (Power vent control board) connects to Terminal 4 (Terminal block).
- A JUMPER connects Terminal 2 to Terminal 3.

TERMINAL BLOCK in the electrical box of the water heater

OPTIONAL POWER VENTER/ Tjernlund Model HS1 & HS2 CONTROL BOARD



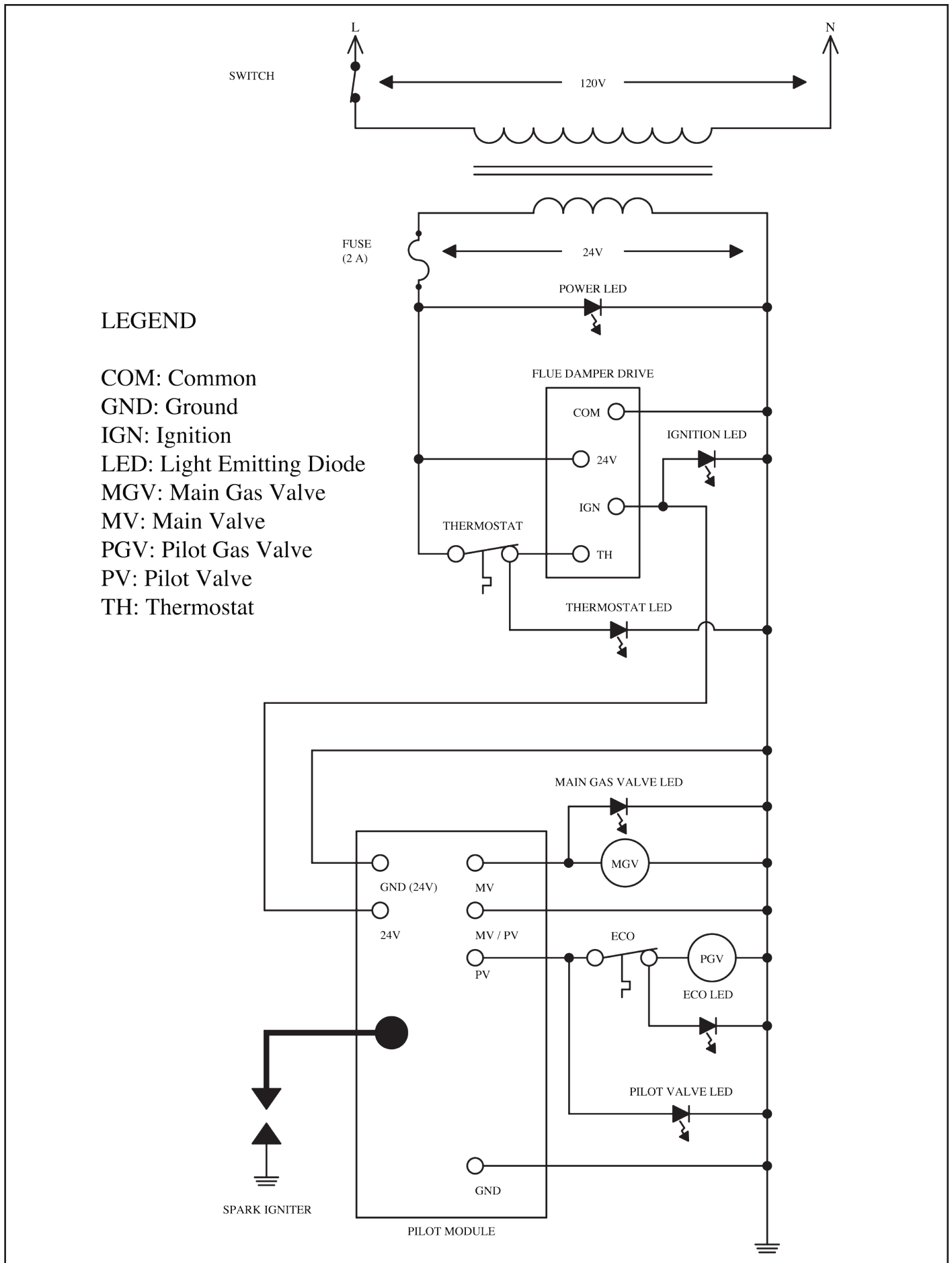


Figure 17 - Wiring the Control

Location	Complete
Is the water heater located close to the chimney or the gas vent and the main use of hot water?	
Is the water heater protected from freezing temperatures?	
Has a drain pan been installed and piped to a free-flowing drain?	
Is the main gas valve accessible for servicing?	
Have clearances from combustible materials been observed?	
Combustion and Ventilation Air Supply	Complete
Is the area around the water heater clean and properly ventilated?	
Is the fresh air supply free of corrosive elements and flammable vapors?	
Does the water heater have access to enough fresh combustion air?	
Have the fresh air openings been sized correctly and has consideration been given to the blocking effect of louvers and grilles?	
Venting	Complete
Has the manufacturer's supplied flue damper/drafthood assembly been installed correctly?	
Is the vent piping made of an approved material and sized correctly?	
Have all horizontal runs of vent pipe been installed with a minimum rise of 1/4" per foot of run?	
Has all vent piping been secured with sheet metal screws?	
Water Piping	Complete
Has a temperature and pressure relief valve been installed?	
Does this valve have a discharge line installed, and is it piped to a free-flowing drain?	
Have all piping connections been properly installed, and are they leak free?	
Is the water heater full of water?	
Gas Connections	Complete
Is the gas supplied to the water heater the same type indicated on the water heater rating plate (Natural)?	
Has the gas line been installed with a manual shut-off valve, union, and drip-leg?	
Is the gas piping large enough and made of an approved material?	
Have all connections been made with an approved joint compound?	
Has the gas piping been tested for leaks with a soap and water solution?	
Wiring	Complete
Has the wiring been properly installed?	
Have the electrical connections been checked, and are they secure?	
Is the water heater electrically grounded?	
Signed by Technician	Date

Table 7 - Installation Checklist

Part 3 - Operating Instructions

A. Lighting the Water Heater



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

WARNING

DO NOT LIGHT this water heater if:

- It is not full of water.
- The gas supplied does not match the type listed on the rating plate.
- The flue damper/drafthood assembly has not been installed.
- Gasoline or any other flammable vapors or liquids have been stored in the vicinity of the water heater.

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

B. Drafthood Operation

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

C. Water Temperature Regulation

The water temperature for all models is controlled by a thermostat with two sensing elements. One sensor is located near the top of the tank and the other is near the center. The thermostat is factory adjusted to its lowest temperature setting. To adjust the water temperature, insert a small flat head screwdriver into the slotted screw located in the hole on the front of the thermostat. See Figure 18. Turn the temperature dial to the desired setting. To maximize the efficiency of the water heater and reduce the risk of scalding, it is recommended that the dial be adjusted to the lowest setting that produces an acceptable hot water supply. The dial may be set from 100°F to 180°F (38°C to 82°C).

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

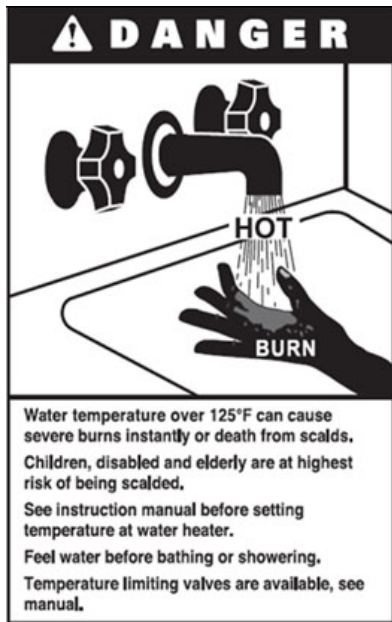


Figure 18 - Thermostat

⚠ WARNING

The higher the temperature setting, the greater the risk of scalding. Hot water can cause third degree burns in 1 second at 160°F (71°C), 5 seconds at 150°F (65°C), and 30 seconds at 130°F (54°C). In households where there are children, physically challenged individuals, or elderly persons, mixing valves for point of use are necessary as a means of reducing the scalding potential of hot water. Failure to install a mixing valve can result in serious personal injury or death.

D. Out of Fuel

⚠ WARNING

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

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

1. Set the thermostat to the lowest setting.
2. Turn the gas control knob clockwise to "OFF".
3. Turn off all electric power to the appliance.
4. Once the gas supply has been reestablished, proceed to *Lighting Instructions*.

Part 4 - General Maintenance

A. Housekeeping

⚠ WARNING

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

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

B. Condensation

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

- When the water heater is filled with cold water for the first time.
- If the water heater has been undersized.
- When large amounts of hot water are drawn from the water heater in a short period of time, and the refill water is very cold.

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

Because of the large amounts of water that can condense, it is very important that a drain pan be installed under the water heater. Refer to Figure 13. **Under no circumstances is**

the manufacturer to be held liable for any water damage in connection with this water heater. If the problem does not go away and water continues to drip after the water heater has heated up, check all of the plumbing connections to make sure they are not leaking.

C. Main Burner and Pilot

Every 3 months, slide out the burner rack to inspect the burner ports, pilot, and burner orifices. See Figure 19 for burner assembly. Use a wire brush and vacuum cleaner to remove any dirt or debris present. In order for the water heater to operate properly after cleaning, make sure the burner rack is returned to its original position.

D. Cleaning Out the Water Heater

Lime, scale, or sediment may accumulate at the bottom of this water heater. The amount deposited will depend on the hardness of the water supply where this water heater is installed. The harder the water, the more sediment will accumulate. If this sediment is left unchecked, it will reduce the efficiency and life of the water heater.

To Control Sediment Build-Up:

1. Drain a pail of water through the drain valve once a month.
2. Every 3 months, use the following procedure to clean out the bottom of the water heater through the cleanout hole opening:
 - Drain out the water. (Refer to *Draining the Water Heater*).
 - Remove the cleanout door on the lower right side of the water heater jacket.
 - Undo the 6 hex head bolts securing the cleanout cover and remove the cover.
 - Remove any excess sediment accumulation from the bottom of the water heater, taking care not to damage the water heater's glass lining.
 - Inspect the cleanout cover's gasket for wear and replace it if necessary.
 - Replace the cleanout cover and cleanout cover door.
 - Refill the water heater (refer to *Filling the Water Heater*) and turn on the gas (refer to *Lighting Instructions*).

E. Temperature and Pressure Relief Valve

Manually operate the temperature and pressure relief valve at least once a year. Stand 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 and continues to discharge water, replace it with a new valve (refer to *Draining the Water Heater*).

F. 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. Make sure all of the connections are securely fastened, and that all of the joints are properly sealed. If any part of the venting system is damaged, it must be replaced by a qualified service technician. Test the ventilation system to make sure that it is venting properly (refer to *Drafthood Operation*).


G. Anode

This water heater is equipped with multiple anode rods that are designed to prolong the life of the glass-lined tank. By the electrolytic action, these anodes are slowly consumed, protecting the glass-lined tank from corrosion. Each anode should be checked every 2 years. If more than half of an anode has been consumed, it should be replaced. Instructions on how to change an anode can be obtained from the manufacturer.

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

In certain water conditions, the anodes 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 anodes 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 anodes to a type more suitable for these conditions (aluminum anodes) and by chlorinating the water heater and plumbing system. If the problem persists, special filtration equipment may be required. Under no circumstances are the anodes to be removed from the water heater on a permanent basis.

Removal of the anodes will lead to premature failure of the water heater and void the warranty.

 WARNING
<p>Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally 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.</p>

H. Draining the Water Heater

To completely drain the water heater:

1. Turn off gas to the appliance (refer to *Turn Off Gas to Appliance*).
2. Close the gas supply manual shut-off valve.
3. Close the cold water supply manual shut-off valve.
4. Connect one end of a garden hose to the water heater drain valve and put the other next to a free flowing drain.
5. Open the drain valve by turning the knob counterclockwise.
6. Open a hot water faucet to allow air into the system.

I. Vacation

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

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

J. Getting Service for the Water Heater

If you are having problems with your water heater, follow these two easy steps:

1. Consult the Troubleshooting Guide in this manual. It will guide you to the most common problems experienced with a gas-fired water heater. The solutions you find listed may provide a quick and simple solution to your problem and save time and money.
2. If the solution listed in the Troubleshooting Guide does not solve the problem, or if your particular problem does not appear in the guide, contact the installer of the water heater, or the local gas utility.

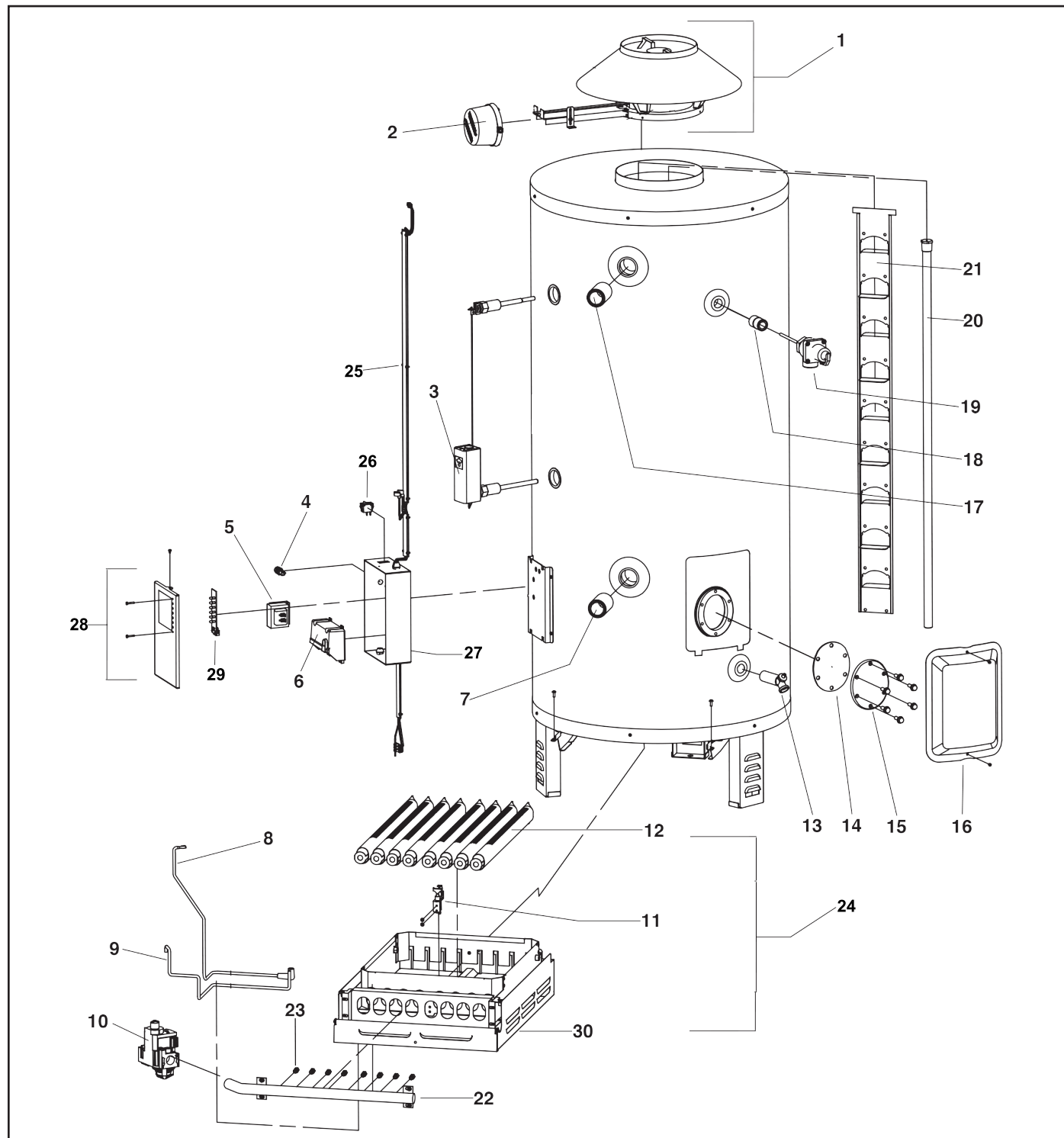


Figure 19 - Replacement Parts

Item	Description	CG125N73	CG150N73	CG199N73	CG250N65	CG300N65
1	5" Vent Damper - 125kBTU w/draft hood and motor	8800P-013				
	6" Vent Damper - 150kBTU w/draft hood and motor		8800P-014			
	6" Vent Damper - 199kBTU w/draft hood and motor			8800P-029		
	7" Vent Damper - 250kBTU w/draft hood and motor				8800P-015	
	8" Vent Damper - 300kBTU w/draft hood and motor					8800P-016
2	Vent Damper Motor	8800P-012				
3	Aquastat with ECO	8800P-002				
4	Fuse - 2 Amps	8800P-005				
5	Transformer	8800P-003				
6	Pilot Module	8800P-007				
7	Inlet Nipple	8800P-030				
8	Ignition Wire	8800P-010*				
9	Pilot Tube	8800P-011*				
10	Natural Gas Control Valve	8800P-001*				
11	Electronic Pilot / Spark Ignitor Assembly	8800P-006*				
12	Burner Tube Natural Gas	8800P-004*				
13	Drain Valve	8800P-031				
14	Hand Hole Cleanout Gasket	8800P-017				
15	Cleanout Cover with Bolts	8800P-019				
16	Access Door	8800P-018				
17	Outlet Nipple	8800P-032				
18	Nipple - Temperature and Pressure Relief Valve	8800P-033				
					8800P-034	
19	Temperature and Pressure Relief Valve	8800P-035				
					8800P-036	
20	Anode	8800P-037				
21	Baffle	8800P-038				
22	Fuel Manifold	8800P-039*				
23	Burner Orifices - 125kBTU	8800P-040				
	Burner Orifices - 150kBTU		8800P-041			
	Burner Orifices - 199kBTU			8800P-042*		
	Burner Orifices - 250kBTU				8800P-043	
	Burner Orifices - 300kBTU					8800P-044
24	Burner Assembly - 125kBTU	8800P-045				
	Burner Assembly - 150kBTU		8800P-048			
	Burner Assembly - 199kBTU			8800P-046		
	Burner Assembly - 199kBTU Low NOx			8800P-054		
	Burner Assembly - 250kBTU				8800P-047	
	Burner Assembly - 300kBTU					8800P-049
25	Wiring Harness	8800P-050				
26	On / Off Switch	8800P-008				
27	Enclosure Control Module	8800P-051				
28	Control Assembly	8800P-052				
29	LED Circuit Board	8800P-009				
30	Burner Box	8800P-053*				

Table 8 - Replacement Parts - *NOTE: On Low NOx models, the entire burner assembly must be replaced. These individual replacement parts ARE NOT available for purchase on Low NOx models.

Part 5 - Troubleshooting Guide

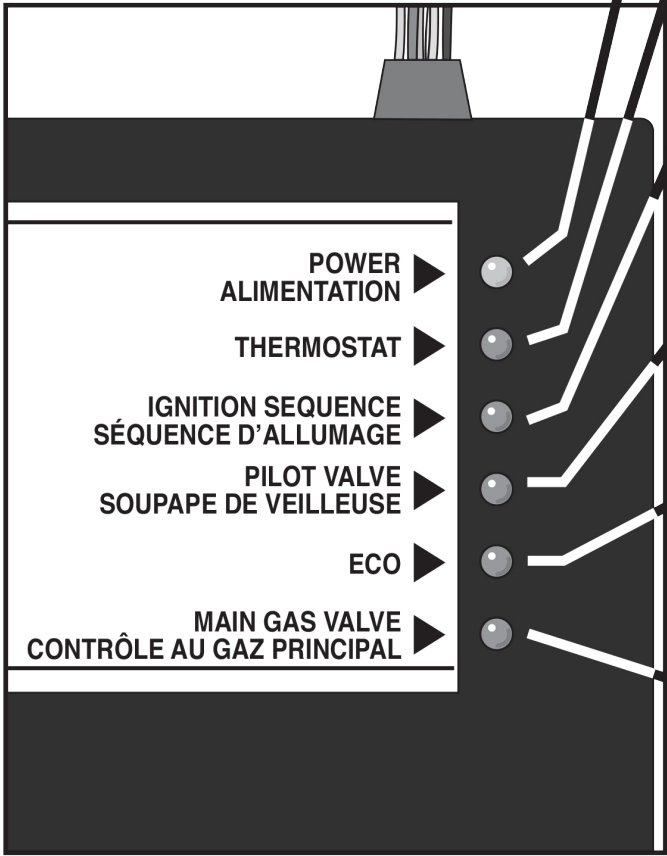
LED Diagnostic System

This water heater is equipped with an LED (light emitting diode) diagnostic system, which is located in the black electrical box on the front left hand side of the water heater. The diagnostic system is designed to give the user or qualified service technician a visual indication of the operational status of the different parts of the water heater’s control system. A fast look at the LED panel will identify where to begin troubleshooting a non-functioning water heater. A green light means that the sequence is operating properly and a red light means ongoing action or a problem with the sequence.

• • • • •
• **Before you start!** •
•

- Before you start troubleshooting your water heater, it is important to verify that all of the electrical connections are tight as wire connections can become loose during handling and transportation.
- • • • •

The LED's are arranged on the panel based on their order in the normal sequence of operation. Each LED represents the following:



POWER
(refer to Part 1 of the *Troubleshooting Guide*)
When this green LED is illuminated:
- 120 VAC power is being supplied to the water heater.
- the “ON/OFF” switch is working properly.
- the 24 VAC transformer is working properly.
- the 2 A fuse is in good condition.

THERMOSTAT
(refer to Part 2 of the *Troubleshooting Guide*)
When this green LED is illuminated:
- the thermostat is calling for heat.
- 24 VAC power is being supplied to the flue damper assembly.

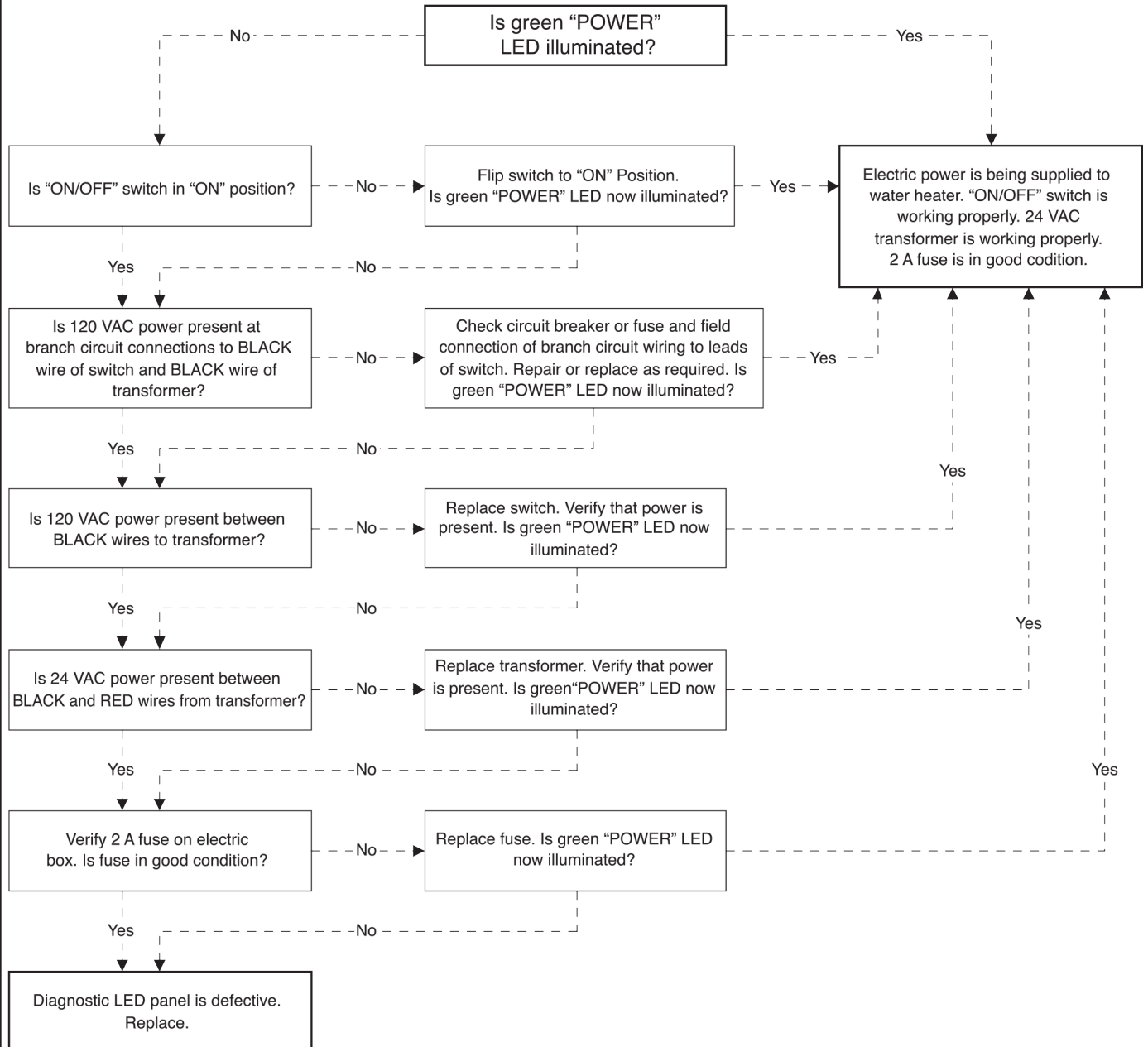
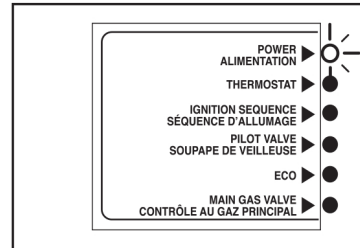
IGNITION SEQUENCE
(refer to Part 3 of the *Troubleshooting Guide*)
When this green LED is illuminated:
- the thermostat has called for heat.
- the flue damper has fully opened.
- 24 VAC is being supplied to the pilot module.
- ignition sequence will begin.

PILOT VALVE
(refer to Part 4 of the *Troubleshooting Guide*)
When this green LED is illuminated:
- the pilot module is in the ignition sequence and is providing 24 VAC power to the ECO inside the thermostat.

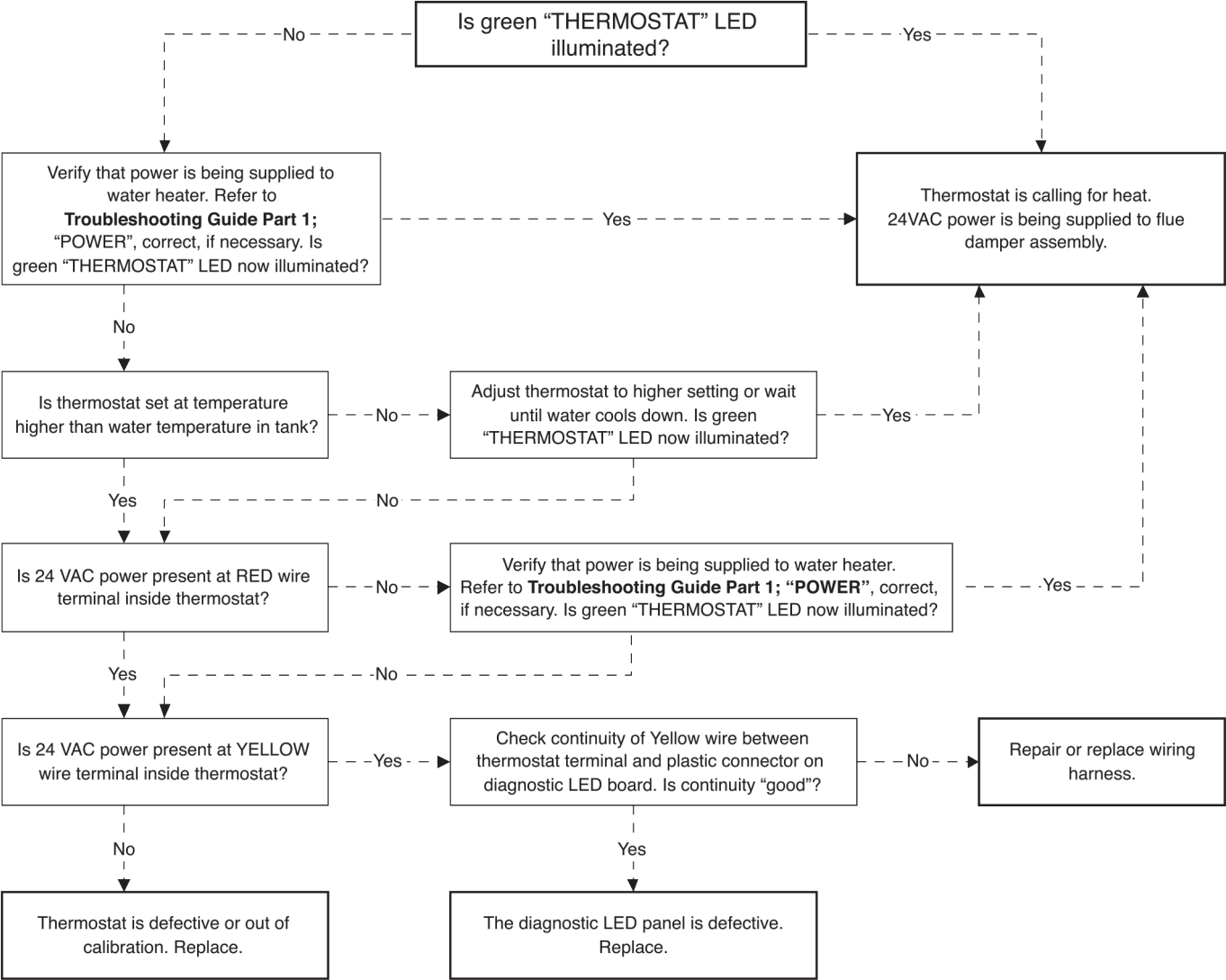
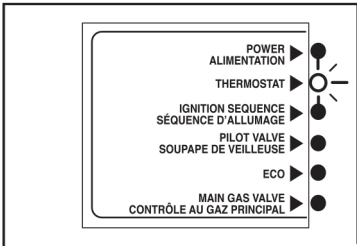
ECO
(refer to Part 5 of the *Troubleshooting Guide*)
When this green LED is illuminated:
- the ECO (energy cut off or high limit) is closed and the power is being supplied to the “PV” terminal on the main gas valve.

MAIN GAS VALVE
(refer to Part 6 of the *Troubleshooting Guide*)
When this green LED is illuminated:
- the pilot module is providing 24 VAC between the “MV” and the “MV/PV” terminals on the main gas valve.
- the main burner should be operating.

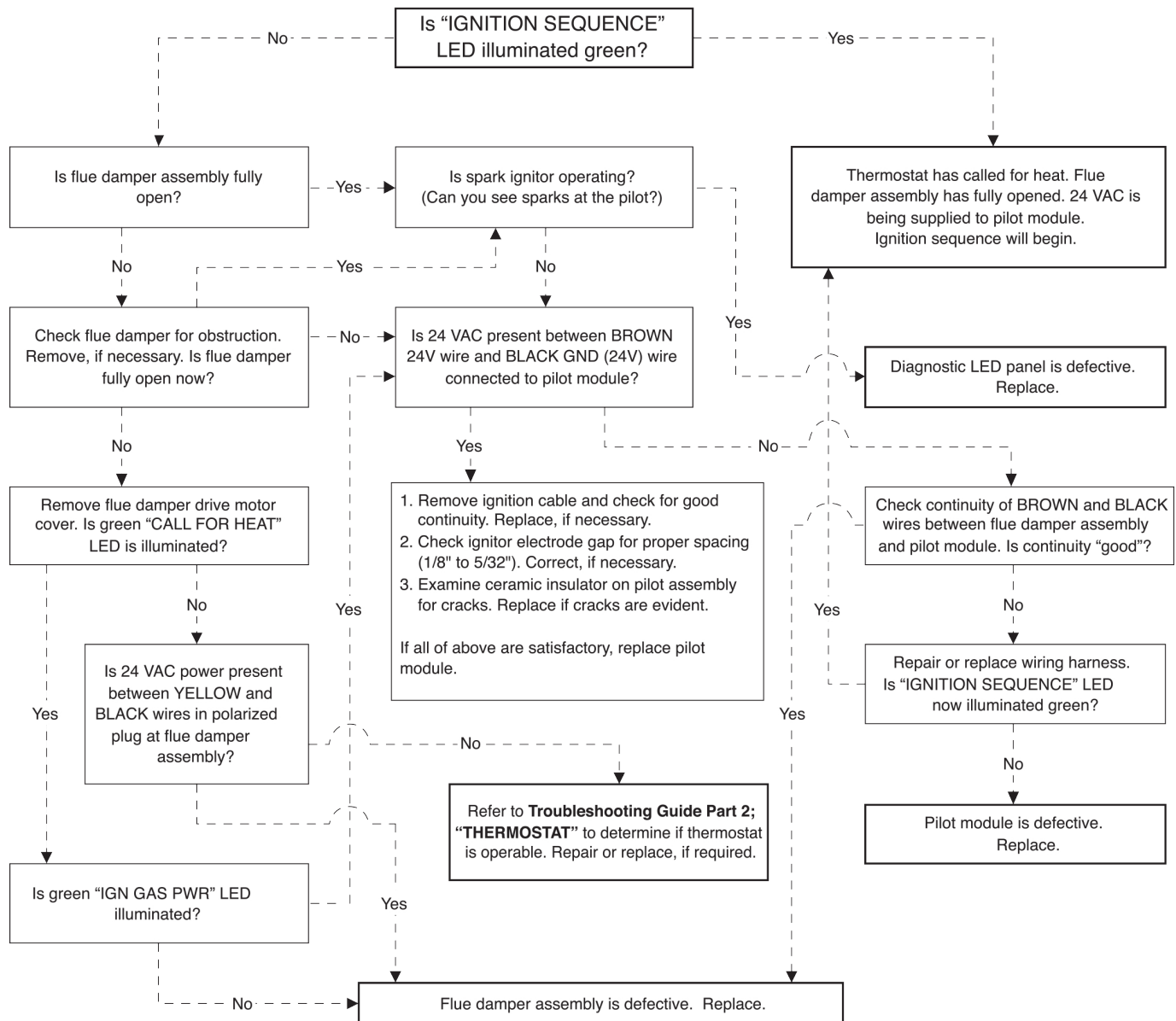
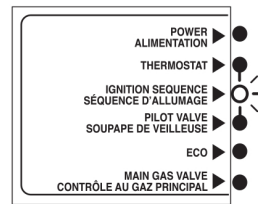
Part 1 “POWER” LED



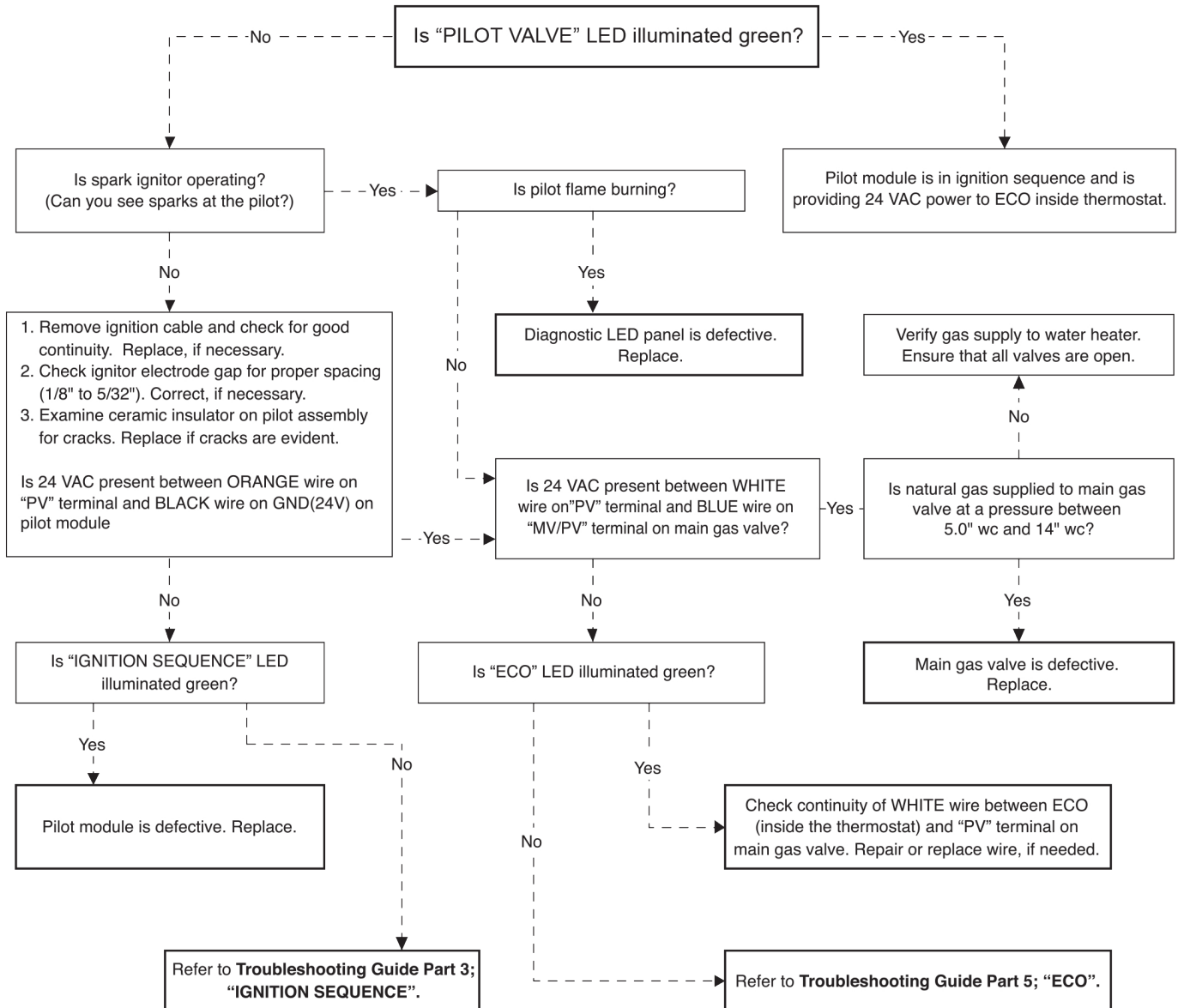
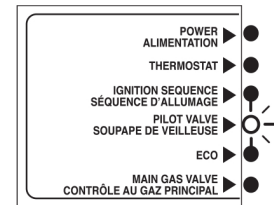
Part 2
“THERMOSTAT” LED



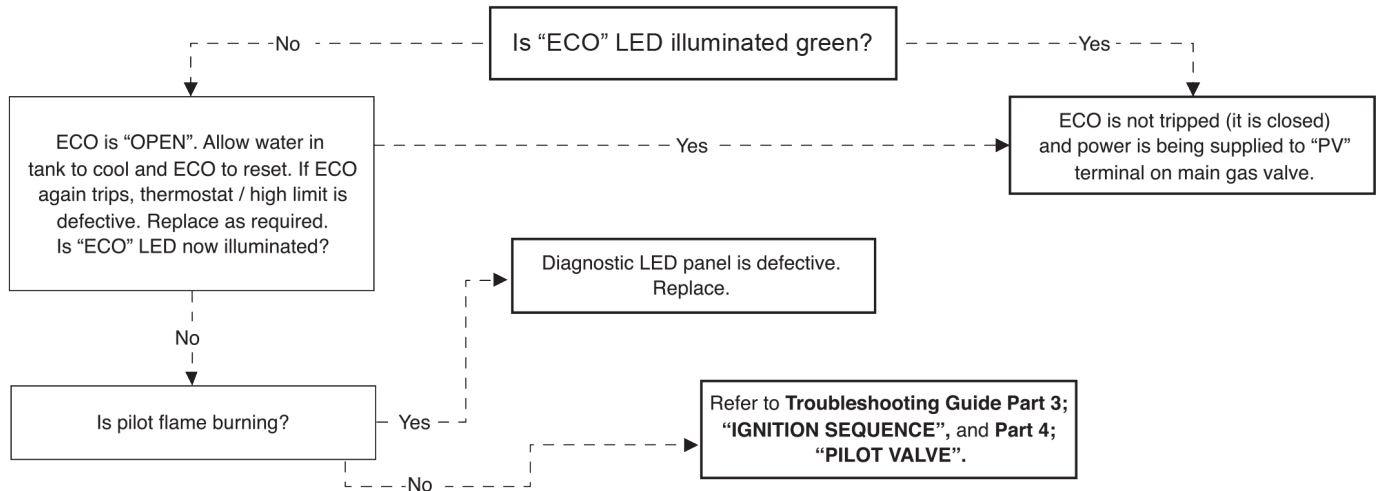
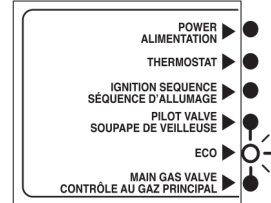
Part 3 “IGNITION SEQUENCE” LED



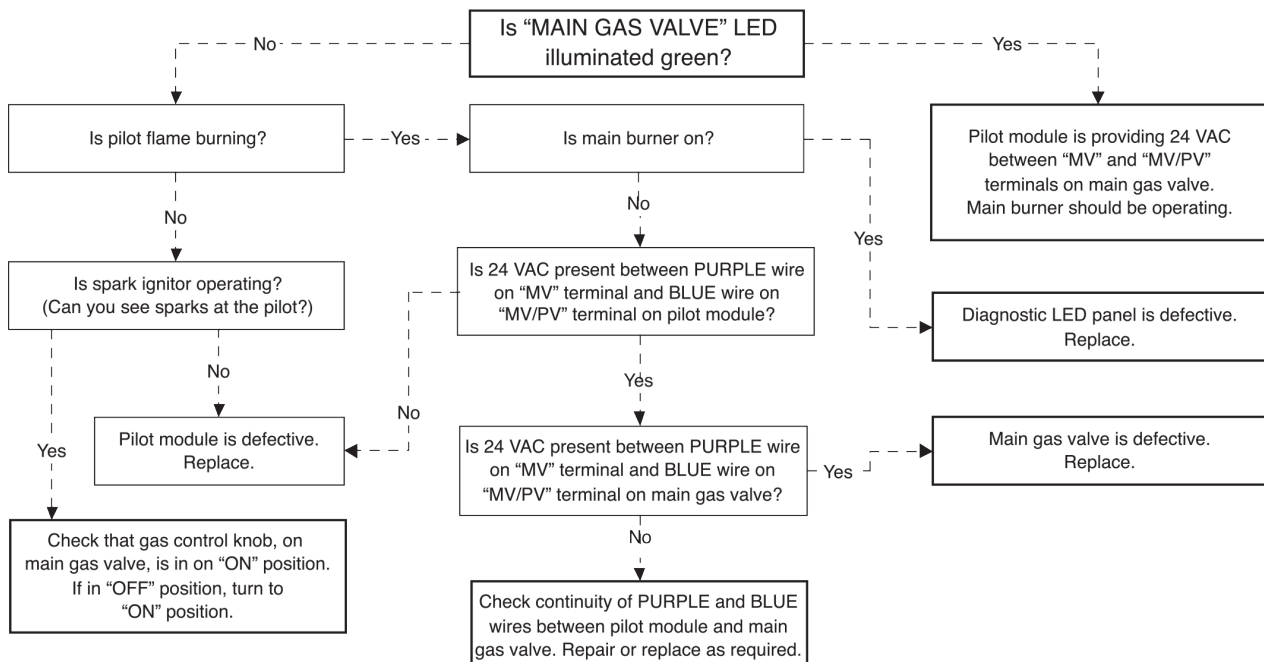
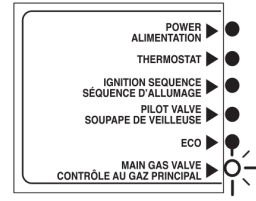
Part 4 “PILOT VALVE” LED



Part 5 “ECO” LED



Part 6 “MAIN GAS VALVE” LED



ADDITIONAL INSTALLATION REQUIREMENTS FOR THE COMMONWEALTH OF MASSACHUSETTS

In the Commonwealth of Massachusetts, the installer or service agent shall be a plumber or gas fitter licensed by the Commonwealth.

When installed in the Commonwealth of Massachusetts or where applicable state codes may apply; the unit shall be installed with a CO detector per the requirements listed below.

5.08: Modifications to NFPA-54, Chapter 10

(1) Revise NFPA-54 section 10.5.4.2 by adding a second exception as follows:

Existing chimneys shall be permitted to have their use continued when a gas conversion burner is installed, and shall be equipped with a manually reset device that will automatically shut off the gas to the burner in the event of a sustained back-draft.

(2) Revise 10.8.3 by adding the following additional requirements:

(a) For all side wall horizontally vented gas fueled equipment installed in every dwelling, building or structure used in whole or in part for residential purposes, including those owned or operated by the Commonwealth and where the side wall exhaust vent termination is less than seven (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, the following requirements shall be satisfied:

1. INSTALLATION OF CARBON MONOXIDE DETECTORS. At the time of installation of the side wall horizontal vented gas fueled equipment, the installing plumber or gasfitter shall observe that a hard wired carbon monoxide detector with an alarm and battery back-up is installed on the floor level where the gas equipment is to be installed. In addition, the installing plumber or gasfitter shall observe that a battery operated or hard wired carbon monoxide detector with an alarm is installed on each additional level of the dwelling, building or structure served by the side wall horizontal vented gas fueled equipment. It shall be the responsibility of the property owner to secure the service of qualified licensed professionals for the installation of hard wired carbon monoxide detectors

a. In the event that the side wall horizontally vented gas fueled equipment is installed in a crawl space or an attic, the hard wired carbon monoxide detector with alarm and battery back-up may be installed on the next adjacent floor level.

b. In the event that the requirements of this subdivision cannot be met at the time of completion of installation, the owner shall have a period of thirty (30) days to comply with the above requirements; provided, however, that during said thirty (30) day period, a battery operated carbon monoxide detector with an alarm shall be installed.

2. APPROVED CARBON MONOXIDE DETECTORS. Each carbon monoxide detector as required in accordance with the above provisions shall comply with NFPA 720 and be ANSI/UL 2034 listed and IAS certified.

3. **SIGNAGE.** A metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the exhaust vent terminal for the horizontally vented gas fueled heating appliance or equipment. The sign shall read, in print size no less than one-half (1/2) inch in size, "GAS VENT DIRECTLY BELOW, KEEP CLEAR OF ALL OBSTRUCTIONS".

4. **INSPECTION.** The state or local gas inspector of the side wall horizontally vented gas fueled equipment shall not approve the installation unless, upon inspection, the inspector observes carbon monoxide detectors and signage installed in accordance with the provisions of 248 CMR 5.08 (2)(a) 1 through 4.

(b) **EXEMPTIONS:** the following equipment is exempt from 248 CMR 5.08 (2)(a) 1 through 4:

1. The equipment listed in Chapter 10 entitled "Equipment Not Required to be Vented" in the most current edition of NFPA 54 as adopted by the Board; and
2. Product Approved side wall horizontally vented gas fueled equipment installed in a room or structure separate from the dwelling, building or structure used in whole or in part for residential purposes.

(c) **MANUFACTURER REQUIREMENTS – GAS EQUIPMENT VENTING SYSTEM PROVIDED.** When the manufacturer of Product Approved side wall horizontally vented gas equipment provides a venting system design or venting system components with the equipment, the instructions provided by the manufacturer for installation of the equipment and the venting system shall include:

1. Detailed instructions for the installation of the venting system design or the venting system components; and
2. A complete parts list for the venting system design or venting system.

(d) **MANUFACTURER REQUIREMENTS – GAS EQUIPMENT VENTING SYSTEM NOT PROVIDED.** When the manufacturer of a Product Approved side wall horizontally vented gas fueled equipment does not provide the parts for venting the flue gases, but identifies "special venting systems", the following requirements shall be satisfied by the manufacturer:

1. The referenced "special venting system" instructions shall be included with the appliance or equipment installation instructions; and
2. The "special venting systems" shall be Product Approved by the Board, and the instructions for that system shall include a parts list and detailed installation instructions.

(e) A copy of all installation instructions for all Product Approval side wall horizontally vented gas fueled equipment, all venting instructions, all parts lists for venting instructions, and/or all venting design instructions shall remain with the appliance or equipment at the completion of the installation.

Limited Warranty

Commercial Glass-Lined Direct-Fired Gas / Electric Water Heaters

HTP warrants each commercial water heater and its parts to be free from defects in materials and workmanship according to the following terms, conditions, and time periods. The replacement water heater will be warranted for the unexpired portion of the applicable warranty period of the original water heater. The number of replacement water heaters is limited to one (1) per original unit purchased. Replacement parts will be warranted for 90 days. **UNLESS OTHERWISE NOTED THESE WARRANTIES COMMENCE ON THE DATE OF INSTALLATION.** This limited warranty is only available to the original owner of this water heater, and is non-transferable.

Extended Limited Warranty (1 year – Parts, 5 years – Tank)

Extended Limited Warranty coverage shall apply to commercial water heaters registered with HTP, Inc. online at htproducts.com within 90 days of the installation date. See information provided on the following page of this document for registration details.

Standard Limited Warranty (1 year – Parts, 3 years – Tank)

Standard Limited Warranty coverage shall apply to commercial water heaters NOT registered with HTP, Inc. within 90 days of the installation date.

COVERAGE

A. Should a defect or malfunction result in a leakage of water within the above-stated warranty periods due to defective material or workmanship, malfunction, or failure to comply with the above warranty, HTP will replace the defective or malfunctioning water heater with a replacement of the nearest comparable model available at the time of replacement.

B. If HTP is unable to repair or replace the water heater so as to conform to this warranty after a reasonable number of attempts, HTP will then provide, at its option, a replacement unit. These remedies are the purchaser's exclusive remedies for breach of warranty.

C. If government regulations, industry certification, or similar standards require the replacement water heater or part(s) to have features not found in the defective water heater or part(s), the owner will be charged the difference in price represented by those required features. If the owner pays the price difference for those required features and/or to upgrade the size and/or other features available on a new replacement water heater or part(s), the owner will also receive a complete new limited warranty for that replacement water heater or part(s).

D. If at the time of a request for service the owner cannot provide a copy of the original sales receipt or the warranty registration, the warranty period for the water heater shall then be deemed to have commenced thirty (30) days after the date of manufacture of the water heater and NOT the date of installation of the water heater, and be covered by the unexpired portion of the Standard Limited Warranty detailed above.

E. This warranty extends only to commercial water heaters utilized in heating applications that have been properly installed by qualified professionals based upon the manufacturer's installation instructions.

OWNER RESPONSIBILITIES

To avoid the exclusion list in this warranty, the owner or installer must:

1. Maintain the water heater in accordance with the maintenance procedure listed in the manufacturer's provided instructions. Preventive maintenance can help avoid any unnecessary breakdown of your water heater and keep it running at optimum efficiency.
2. Maintain all related heating components in good operating condition.

3. Use the water heater in an open system with a properly sized and installed thermal expansion tank.

4. Use the water heater at water pressures not exceeding the working pressure shown on the rating plate.

WARRANTY EXCLUSIONS

This limited warranty will not cover:

1. Any water heater purchased from an unauthorized dealer or online retailer.
 2. Any water heater not installed by a qualified heating installer/service technician, or installations that do not conform to ANSI, CSA, and/or ETL standards, as well as any applicable national or local building codes.
 3. Service trips to teach you how to install, use, maintain, or to bring the water heater installation into compliance with local building codes and regulations.
 4. Failure to locate the water heater in an area where leakage of the tank or water line connections and the combination temperature and relief valve will not result in damage to the area adjacent to the water heater or lower floors of the structure.
 5. Any failed components of the heat system not manufactured by HTP as part of the water heater.
 6. Water heaters repaired or altered without the prior written approval of HTP.
 7. Damages, malfunctions, or failures resulting from failure to install the water heater in accordance with applicable building codes/ordinances or good plumbing and electrical trade practices.
 8. Damages, malfunctions, or failures resulting from improper installation, failure to operate the water heater at pressures not exceeding the working pressure shown on the rating plate, or failure to operate and maintain the water heater in accordance with the manufacturer's provided instructions.
 9. Failure to operate the water heater in an open system with a properly sized and installed thermal expansion tank.
 10. Failure or performance problems caused by improper sizing of the water heater, expansion device, piping, or the gas supply line, the venting connection, combustion air openings, electric service voltage, wiring or fusing.
 11. Damages, malfunctions, or failures caused by improper conversion from natural gas to LP gas or LP gas to natural gas.
 12. Damages, malfunctions, or failures caused by operating the water heater with modified, altered, or unapproved parts.
 13. Damages, malfunctions, or failures caused by abuse, accident, fire, flood, freeze, lightning, acts of God and the like.
 14. Tank failures (leaks) caused by operating the water heater in a corrosive or contaminated atmosphere.
 15. Damages, malfunctions, or failures caused by operating the water heater with an empty or partially empty tank ("dry firing"), or failures caused by operating the water heater when it is not supplied with potable water, free to circulate at all times.
 16. Failure of the heater due to the accumulation of solid materials and lime deposits.
 17. Any damage or failure resulting from improper water chemistry.
- WATER CHEMISTRY REQUIREMENTS** – Sodium less than 20mGL. Water pH between 6.0 and 8.0. Hardness less than 7 grains. Chlorine concentration less than 100 ppm.
18. Damages, malfunctions, or failures caused by the removal of the anodes and/or by not assuring that there are working anodes in the tank at all times. All anodes must be checked at least once every two years and replaced as necessary.
 19. Components of the water heater that are not defective, but must be replaced during the warranty period as a result of reasonable wear and tear.
 20. Damages, malfunctions, or failures caused by subjecting the tank to pressures or firing rates greater than those shown on the rating label.

21. Damages, malfunctions, or failures resulting from the use of any attachment(s) not supplied by HTP.
22. Water heaters installed outside the fifty states (and the District of Columbia) of the United States of America and Canada.
23. Water heaters moved from the original installation location.
24. Water heaters that have had their rating labels removed.

ONLINE EXTENDED LIMITED WARRANTY REGISTRATION

To register for the extended limited warranty, complete the form located on the HTP website at <http://www.htproducts.com/warranty> within 90 days of installation. The form must be completed in full with owner name, email address, and phone number, the address where the unit is installed and installation date, and unit model and serial numbers. Proof of purchase is required, and may be an invoice for the product, or a bill from an installing contractor that clearly documents the installation of the unit. To be valid, proof of purchase must also include the unit serial number. Proof of purchase may be typed or hand written. Submit the proof of purchase to HTP, Inc. via the directions provided on the website.

PROCEDURES FOR WARRANTY SERVICE REQUESTS

Any claim for warranty assistance must be made promptly. Determine if the water heater is "in-warranty" (that is, within the applicable warranty period) by reviewing a copy of the original sales receipt or warranty registration. The owner must present a copy of the original sales receipt or warranty registration for a warranty service request.

If the water heater is "in-warranty", contact the distributor from whom the water heater was purchased (or the installer) for assistance. Be prepared to provide the retailer or installer with a copy of the original receipt, complete model and serial numbers, and the date of installation of the water heater, in addition to explanation of the water heater problem.

Warranty coverage is subject to validation of "in-warranty" coverage by HTP claims department personnel. All alleged defective or malfunctioning parts must be returned to HTP via the local distribution channels where original purchase was made. NOTE: Any parts or heaters returned to HTP for warranty analysis will become the property of HTP and will not be returned, even if credit is denied. If all warranty conditions are satisfied, HTP will provide replacement parts to the retailer.

For questions about the coverage of this warranty, please contact HTP at the address or phone number stated below:

HTP
272 Duchaine Blvd.
New Bedford, MA
02745
Warranty Service Department
1(800) 323-9651

SERVICE, LABOR AND SHIPPING COSTS

This limited warranty does not extend to any shipping charges, delivery expenses, or administrative fees incurred by the owner in repairing or replacing the water heater or part(s). This warranty does not extend to labor costs beyond the coverage specified in this warranty document. All such expenses are the owner's responsibility.

LIMITATIONS OF YOUR HTP WARRANTY AND REMEDIES
THE FOREGOING WARRANTIES ARE EXCLUSIVE AND ARE GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY OBLIGATION, LIABILITY, RIGHT, CLAIM OR REMEDY IN

CONTRACT OR TORT, WHETHER OR NOT ARISING FROM HTP'S NEGLIGENCE, ACTUAL OR IMPUTED. THE REMEDIES OF THE PURCHASER SHALL BE LIMITED TO THOSE PROVIDED HEREIN TO THE EXCLUSION OF ANY OTHER REMEDIES INCLUDING WITHOUT LIMITATION, INCIDENTAL OR CONSEQUENTIAL DAMAGES, SAID INCIDENTAL AND CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, PROPERTY DAMAGE, LOST PROFIT OR DAMAGES ALLEGED TO HAVE BEEN CAUSED BY ANY FAILURE OF HTP TO MEET ANY OBLIGATION UNDER THIS AGREEMENT INCLUDING THE OBLIGATION TO REPAIR AND REPLACE SET FORTH ABOVE. NO AGREEMENT VARYING OR EXTENDING THE FOREGOING WARRANTIES, REMEDIES OR THIS LIMITATION WILL BE BINDING UPON HTP. UNLESS IN WRITING AND SIGNED BY A DULY AUTHORIZED OFFICER OF HTP. THE WARRANTIES STATED HEREIN ARE NOT TRANSFERABLE AND SHALL BE FOR THE BENEFIT OF THE ORIGINAL PURCHASER ONLY.

NO OTHER WARRANTIES

This HTP Warranty gives you specific legal rights, and you may also have other rights that vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages so this limitation or exclusion may not apply to you.

These are the only written warranties applicable to the commercial water heater manufactured and sold by HTP. HTP neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said commercial water heaters.

HTP reserves the right to change specifications or discontinue models without notice.

Maintenance Notes

[illegible]

Customer Installation Record Form	
The following form should be completed by the installer for you to keep as a record of the installation in case of a warranty claim. After reading the important notes at the bottom of the page, please also sign this document.	
Customer's Name	
Date of Installation	
Installation Address	
Product Name / Serial Number(s)	
Comments	
Installer's Code / Name	
Installers Phone Number	
Signed by Installer	
Signed by Customer	
Installation Notes	

IMPORTANT

Customer: Please only sign after the installer has fully reviewed the installation, safety, proper operation, and maintenance of the system. If the system has any problems please call the installer. If you are unable to make contact, please call your sales representative.

Distributor / Dealer: Please insert contact details.