

# Instruction Manual for Residential Direct Vent Gas Water Heaters

**NOT FOR USE IN MANUFACTURED (MOBILE) HOMES**



GAMA certification applies to all residential gas water heaters with capacities of 20 to 100 gallons with input rating of 75,000 BTU/Hr. or less.

**ALL TECHNICAL AND WARRANTY QUESTIONS:** SHOULD BE DIRECTED TO THE LOCAL DEALER FROM WHOM THE WATER HEATER WAS PURCHASED. IF YOU ARE UNSUCCESSFUL, PLEASE WRITE TO THE COMPANY LISTED ON THE RATING PLATE THE WATER HEATER.

## For Your Safety AN ODORANT IS ADDED TO THE GAS USED BY THIS WATER HEATER

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

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- WHAT TO DO IF YOU SMELL GAS
  - Do not try to light any appliance.
  - Do not touch any electrical switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
  - If you can not reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

### ▲ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause **DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE.** Refer to this manual for assistance or consult the local gas utility for further information.

### ▲ WARNING

Flammable vapors may be drawn by air currents from other areas of the structure to this appliance.

### ▲ WARNING

**READ THE GENERAL SAFETY SECTION BEGINNING ON INSIDE COVER AND THEN THIS ENTIRE MANUAL BEFORE INSTALLING OR OPERATING THIS WATER HEATER.**

# General Safety

## ▲ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause DEATH, SERIOUS BODILY INJURY OR PROPERTY DAMAGE. Refer to this manual for assistance or consult the local gas utility and/or plumbing contractor.

## ▲ WARNING

For protection against excessive pressures and temperatures in this water heater, install temperature-pressure protective equipment required by local codes, but not less than a combination temperature-pressure relief valve certified by nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, the current edition ANSI Z21.22. This valve must be marked with a maximum set pressure not to exceed the marked hydrostatic working pressure of the water heater (150 lbs./sq. in.). The relief valve must be marked with a discharge capacity not less than the water heater Btu input rate as shown on the model rating plate.

Install the temperature-pressure relief valve directly into the fitting of the water heater. Position the valve downward and provide tubing so that any discharge will exit only within 6 inches above, or at any distance below the structural floor. Be certain that no contact is made with any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances. Excessive length, over 30 feet, or use of more than four elbows can cause restriction and reduce the discharge capacity of the valve.

No valve or other obstruction is to be placed between the relief valve and the tank. Do not connect tubing directly to discharge drain unless a 6" air gap is provided. To prevent bodily injury, hazard to life, or damage property, the relief valve must be allowed to discharge water in quantities should circumstances demand. If the discharge pipe is not connected to a drain or other suitable means, the water flow may cause property damage.

The Discharge Pipe:

- Must not be smaller in size than the outlet pipe size of the valve, or have any reducing couplings or other restriction.
- Must not be plugged or blocked.
- Must be of material listed for hot water distribution.
- Must be installed so as to allow complete drainage of both the temperature-pressure relief valve, and the discharge pipe.
- Must terminate at an adequate drain.
- Must not have any valve between the relief valve and tank.

## ▲ WARNING

A fire can start if combustible materials such as clothing, cleaning materials, or flammable liquids are placed against or next to the water heater.

## ▲ WARNING

**WATER HEATERS EQUIPPED FOR ONE TYPE GAS ONLY:** This water heater is equipped for one type gas only. Check the rating plate near the gas control valve for the correct gas. **DO NOT USE THIS WATER HEATER WITH ANY GAS OTHER THAN THE ONE SHOWN ON THE MODEL RATING PLATE.** Failure to use the correct gas can cause problems which can result in DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE. If you have any questions or doubts consult your gas supplier or local utility.

## ▲ WARNING

**INSTALLATION IN AREAS WHERE FLAMMABLE LIQUIDS (VAPORS) ARE LIKELY TO BE PRESENT OR STORED (GARAGES, STORAGE, AND UTILITY AREAS, ETC):** Flammable liquids (such as gasoline, solvents, propane (LP) or butane, etc.), all of which emit flammable vapors, may be improperly stored or used in such areas. The gas water heater pilot light or main burner can ignite such vapors. The resulting flashback and fire can cause death or serious burns to anyone in the area, as well as property damage.

If installation in such areas is your only option, then the installation must be accomplished in a way that the pilot flame and main burner flame are elevated from the floor at least 18 inches. While this may reduce the chances of flammable vapors from a floor spill being ignited, gasoline and other flammable substances should never be stored or used in the same room or area containing a gas water heater or other open flame or spark producing appliance.

NOTE: Flammable vapors may be drawn by air currents from other areas of the structure to the appliance.

## ▲ WARNING

**HOTTER WATER CAN SCALD:** Water heaters are intended to produce hot water. Water heated to a temperature which will satisfy clothes washing, dish washing, and other sanitizing needs can scald and permanently injure you upon contact. Some people are more likely to be permanently injured by hot water than others. These include the elderly, children, the infirm, or physically/mentally handicapped. If anyone using hot water in your home fits into one of these groups or if there is a local code or state law requiring a certain temperature water at the hot water tap, then you must take special precautions. In addition to using the lowest possible temperature setting that satisfies your hot water needs, a means such as a mixing valve, should be used at the hot water taps used by these people or at the water heater. Mixing valves are available at plumbing supply or hardware stores. Follow manufacturers instructions for installation of the valves. Before changing the factory setting on the thermostat, read the "Temperature Regulation" section in this manual.

## ▲ WARNING

**BEFORE LIGHTING [PROPANE (L.P.) GAS WATER HEATERS]:** Propane (L.P.) gas is heavier than air. Should there be a leak in the system, the gas will settle near the ground. Basements, crawl spaces, skirted areas under manufactured (mobile) homes (even when ventilated), closets and areas below ground level will serve as pockets for the accumulation of this gas. Before attempting to light or relight the water heater's pilot or turning on a nearby electrical light switch, be absolutely sure there is no accumulated gas in the area. Search for odor of gas by sniffing at ground level in the vicinity of the appliance. If odor is detected, follow steps indicated at "For Your Safety" on the cover page of this manual then leave the premises.

## ▲ WARNING

This water heater must not be installed directly on carpeting. Carpeting must be protected by a metal or wood panel beneath the appliance extending beyond the full width and depth of the appliance by at least 3 inches (76.2mm) in any direction, or if the appliance is installed in an alcove or closet, the entire floor must be covered by the panel. Failure to heed this warning may result in a fire hazard.

# General Safety (cont'd)

## ▲ WARNING

A gas water heater cannot operate properly without the correct amount of combustion air and ventilation air. Refer to "Locating The New Water Heater" and "Combustion Air and Ventilation" sections. Never obstruct the flow of combustion and ventilation air. If you have any doubts or questions at all, call your gas company. Failure to provide the proper amount of combustion air can result in a fire or explosion and can cause DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE.

## ▲ WARNING

If this water heater will be used in beauty shops, barber shops, cleaning establishments, or self-service laundries with dry cleaning equipment, it is imperative that the water heater or water heaters be installed so that combustion and ventilation air be taken from outside these areas. Refer to the "Locating The New Water Heater" section of this manual and also the current edition of the National Fuel Gas Code, ANSI Z223.1, also referred to as NFPA 54 for specifics provided concerning air required.

## ▲ WARNING

No vent damper installation is compatible with this direct vent water heater design. No vent damper, whether it is operated thermally or otherwise is to be installed on this direct vent water heater. Alteration of any part of the factory-furnished vent assembly could result in improper operation due to restriction of flue gases, spillage of flue gases and may cause carbon monoxide poisoning.

## ▲ WARNING

1. The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of the gas system at test pressures in excess of ½ pound per square inch (3.5kPa).
2. The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal or less than ½ pound per square inch (3.5kPa).

## ▲ WARNING

Soot build-up indicates a problem that requires correction before further use. Turn "OFF" gas to water heater and leave "OFF" until repairs are made, because failure to correct the cause of the sooting can result in a fire or explosion causing DEATH SERIOUS BODILY INJURY OR PROPERTY DAMAGE.

## ▲ WARNING

The water heater must be properly vented to the outdoors. Never operate the water heater unless it is vented to the outdoors and has adequate air supply to avoid risks of improper operation, explosion or asphyxiation.

## ▲ WARNING

Vent termination must not be within 4 feet of any items such as gas meters, gas valves or other gas regulating equipment.

## ▲ WARNING

Obstructed or deteriorated vent systems may present a serious health risk or asphyxiation.

## ▲ WARNING

Chemical vapor corrosion of the flue and vent system may occur if air for combustion contains certain chemical vapors. Spray can propellants, cleaning solvents, refrigerator and air conditioner refrigerants, swimming pool chemicals, calcium and sodium chloride, waxes, bleach, and process chemicals are typical compounds which are potentially corrosive.

## ▲ WARNING

Minimum clearances between the water heater and combustible and noncombustible construction are: 0 inches from sides, 0 inches from back, 4 inches from front of jacket to closet door and 3 inches from top of jacket to combustible and noncombustible ceiling. Minimum vent clearance: 0 inches. Note: provide 24 inches front clearance for servicing. (See Figure 1) Page 7.

## ▲ WARNING

**HYDROGEN GAS:** Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally two weeks or more). Hydrogen gas is extremely flammable and explosive. To prevent the possibility of injury under these conditions, we recommend the hot water faucet be opened for several minutes at the kitchen sink before any electrical appliances which are connected to the hot water system are used (such as a dishwasher or washing machine). If hydrogen gas is present, there will probably be an unusual sound similar to air escaping through the pipe as the hot water faucet is opened. There must be no smoking or open flame near the faucet at the time it is open.

## ▲ WARNING

**INSULATING JACKETS:** When installing an external water heater insulation jacket on a gas water heater:

- a. DO NOT cover the temperature-pressure relief valve.
- b. DO NOT put insulation over any part of the top of the gas water heater.
- c. DO NOT put insulation over the gas control valve or gas control valve/burner cover, or any access areas to the burner.
- d. DO NOT let insulation around the gas water heater to get within 8 inches of the floor (air must get to the burner).
- e. DO NOT cover or remove operating instructions, and safety related warning labels and materials affixed to the water heater.

Failure to heed this will result in the possibility of a fire or explosion.

## ▲ WARNING

Flood damage to a water heater may not be readily visible or immediately detectible. However, over a period of time a flooded water heater will create dangerous conditions which can cause DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE. Call a qualified service technician or contractor to replace a flooded water heater. Do not attempt to repair the unit! It must be replaced!

## ▲ CAUTION

**WATER HEATERS EVENTUALLY LEAK:** Installation of the water heater must be accomplished in such a manner that if the tank or any connections should leak, the flow of water will not cause damage to the structure. For this reason, it is not advisable to install the water heater in an attic or upper floor. When such locations cannot be avoided, a suitable drain pan should be installed under the water heater. Drain pans are available at your local hardware store. Such a drain pan must be not greater than 1½ inches deep, have a minimum length and width of at least 2 inches greater than the water heater dimensions and must be piped to an adequate drain. The pan must not restrict combustion air flow. Under no circumstances is the manufacturer to be held liable for any water damage in connection with this water heater.

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# Introduction

**Thank You** for purchasing this water heater. Properly installed and maintained, it should give you years of trouble free service.

## Abbreviations Found In This Instruction Manual

CSA - Canadian Standards Association  
ANSI - American National Standards Institute  
NFPA - National Fire Protection Association

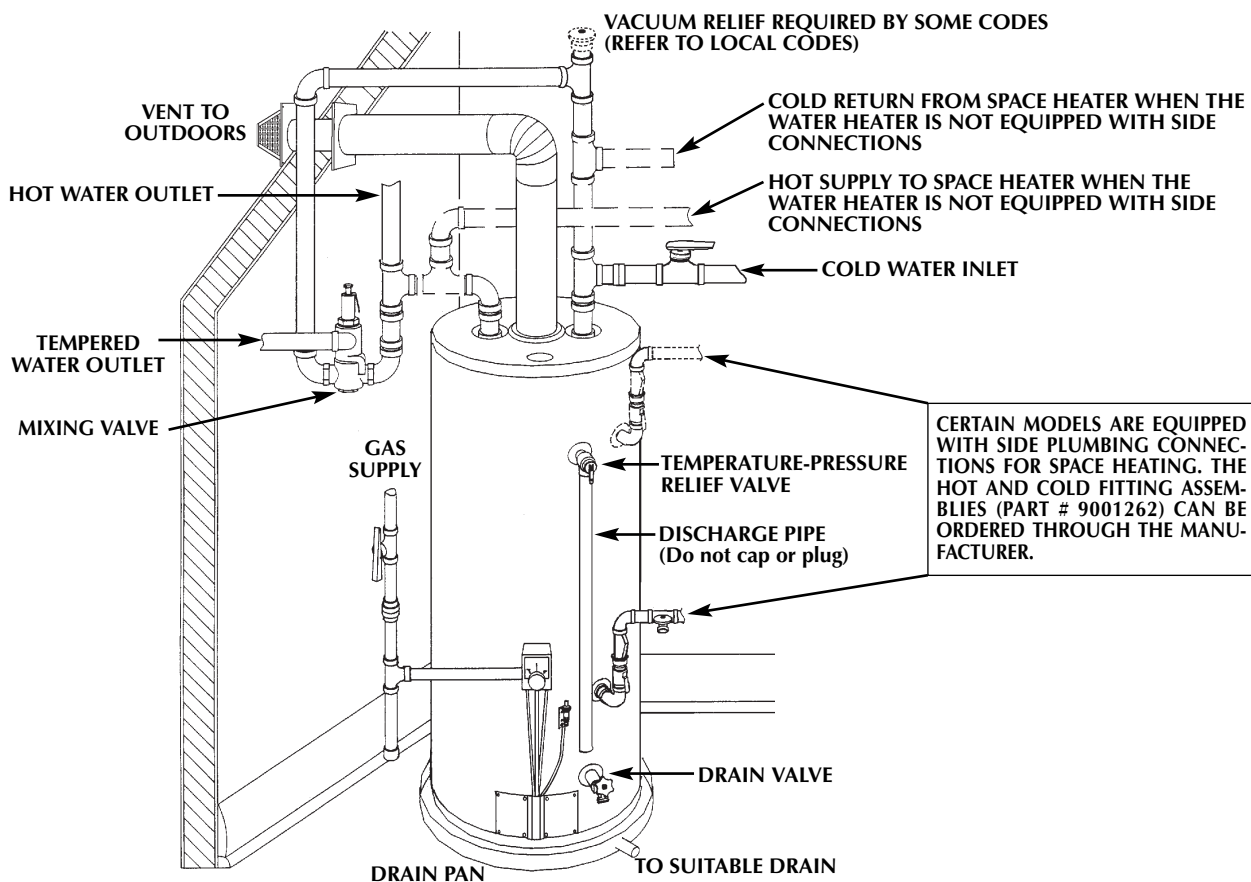
## ▲ WARNING

This gas-fired water heater is design certified by CSA INTERNATIONAL under American National Standard/CSA Standard for Gas Water Heaters ANS Z21.10.1 • CSA 4.1 (current edition). The installation must conform with this manual, Local Codes and with the current edition of the National Fuel Gas Code, ANS Z223.1. This publication is available from your local government or public library, gas company, or by writing NFPA, Batterymarch Park, Quincy, MA 02269.

# Preparing for the New Installation

1. Read the "General Safety" section, pages 2 and 3 of this manual first and then the entire manual carefully. If you don't follow the safety rules, the water heater will not operate properly. It could cause DEATH, SERIOUS BODILY INJURY AND/OR PROPERTY DAMAGE.  
This manual contains instructions for the installation, operation, and maintenance of the gas-fired water heater. It also contains warnings through out the manual that you must read and be aware of. All warnings and all instructions are essential to the proper operation of the water heater and your safety. Since we cannot put everything on the first few pages, **READ THE ENTIRE MANUAL BEFORE ATTEMPTING TO INSTALL OR OPERATE THE WATER HEATER.**
2. The installation must conform with the instructions in this manual; gas company rules; and Local Codes, or in the absence of Local Codes, with the current edition of the National Fuel Gas code, ANSI Z223.1, also referred to as NFPA 54. This publication is available from your local government or public library or gas company or by writing NFPA, Batterymarch Park, Quincy, MA 02269.
3. If after reading this manual you have any questions or do not understand any portion of the instructions, call the local gas utility or the manufacturer whose name appears on the rating plate.
4. Carefully plan the place where you are going to put the water heater. Correct combustion, vent action, and vent pipe installation are very important in preventing death from possible carbon monoxide poisoning and fires.  
Examine the location to ensure the water heater complies with the "Locating the New Water Heater" section in this manual.
5. For California installation this water heater must be braced, anchored, or strapped to avoid falling or moving during an earthquake. See instructions for correct installation procedures. Instructions may be obtained from your local dealer, wholesaler, public utilities or California office of the State Architect, 400 P Street, Sacramento, CA 95814.
6. Massachusetts Code requires this water heater to be installed in accordance with Massachusetts 248-CMR 2.00: State Plumbing Code and 248-CMR 5.00.
7. Complies with SCAQMD rule #1121 and districts having equivalent NOx requirements.

# Typical Installation



This appliance has been design certified as complying with American National Standard/CSA Standard for water heaters and is considered suitable for:

**Water (Potable) Heating:** All models are “considered suitable for water (potable) heating.”

**Water (Potable) Heating and Space Heating:** Certain models are “considered suitable for water (potable) heating and space heating.” Refer to the model and rating plate of the water heater.

## ▲ WARNING

When the system requires water at temperatures higher than required for other uses, the hot water system may require a means such as a mixing valve to be installed to temper the water at certain points of use. Some people are more likely to be permanently injured by hot water than others; these include the elderly, children, the infirm, or the physically/mentally handicapped. Before immersing yourself or anyone else in hot water, be sure to check the water temperature. **WARNING: HOTTER WATER INCREASES THE RISK OF SCALD INJURY.** (Also see “Temperature Regulation” section) Mixing valves are available at plumbing supply or hardware stores. Follow manufacturers instructions for installation of these valves.

## ▲ WARNING

This water heater shall not be connected to any heating systems or component(s) previously used with a non-potable water heating appliance. If this water heater is also used for space heating applications, all piping and components connected to the water heater shall be suitable for use with potable water.

## ▲ WARNING

Toxic chemicals such as used for treatment of boilers or non-potable water heating appliances shall never be introduced into a potable water space heating system.

**NOTE:** To protect against untimely corrosion of hot and cold water fittings, it is strongly recommended that di-electric unions or couplings be installed on this water heater when connected to copper pipe.

# Locating the New Water Heater

## Facts to Consider About the Location

You should carefully choose an indoor location for the new water heater, because the placement is a very important consideration for the safety of the occupants in the building and for the most economical use of the appliance. **This water heater is not for use in manufactured (mobile) homes or outdoor installation.**

Whether replacing an old water heater or putting the water heater in a new location, the following critical points must be observed.

1. The location selected should be indoors as close as practical to the outside wall to which the water heater vent is going to be installed through, and as centralized with the water piping system as possible. The water heater, as all water heaters, will eventually leak. Do not install without adequate drainage provisions where water flow will cause damage.

### ▲ CAUTION

**WATER HEATERS EVENTUALLY LEAK:** Installation of the water heater must be accomplished in such a manner that if the tank or any connections should leak, the flow of water will not cause damage to the structure. For this reason, it is not advisable to install the water heater in an attic or upper floor. When such locations cannot be avoided, a suitable drain pan should be installed under the water heater. Drain pans are available at your local hardware store. Such a drain pan must have a minimum length and width of at least 2 inches greater than the water heater dimensions and must be piped to an adequate drain. Drain pan depth must allow for access to the outer doors for lighting the pilot and servicing the burner. Under no circumstances is the manufacturer to be held liable for any water damage in connection with this water heater.

### ▲ WARNING

**INSTALLATION IN AREAS WHERE FLAMMABLE LIQUIDS (VAPORS) ARE LIKELY TO BE PRESENT OR STORED (GARAGES, STORAGE AND UTILITY AREAS, ETC):** Flammable liquids (such as gasoline, solvents, propane (LP) or butane, etc.) or other substances (such as adhesives, etc.), all of which emit flammable vapors, may be improperly stored or used in such areas. The gas water heater pilot light or main burner can ignite such vapors. The resulting flashback and fire can cause death or serious burns to anyone in the area, as well as property damage.

If installation in such areas is your only option, then the installation must be accomplished in a way that the pilot flame and main burner flame are elevated from the floor at least 18 inches. While this may reduce the chances of flammable vapors from a floor spill being ignited, gasoline and other flammable substances should never be stored or used in the same room or area containing a gas water heater or other open flame or spark producing appliance.

Also, the water heater must be located and/or protected so it is not subject to physical damage by a moving vehicle.

**NOTE:** Flammable vapors may be drawn by air currents from other areas of the structure to the appliance.

2. The location selection must provide adequate clearances for servicing and proper operation of the water heater.

### ▲ WARNING

Propellants of aerosol sprays and volatile compounds, (cleaners, chlorine based chemicals, refrigerants, etc.) in addition to being highly flammable in many cases, will also change to corrosive hydrochloric acid when exposed to the combustion products of the water heater. The results can be hazardous, and also cause product failure.

### ▲ WARNING

This water heater must not be installed directly on carpeting. Carpeting must be protected by a metal or wood panel beneath the appliance extending beyond the full width and depth of the appliance by at least 3 inches (76.2mm) in any direction, or if the appliance is installed in an alcove or closet, the entire floor must be covered by the panel. Failure to heed this warning may result in a fire hazard.

### ▲ WARNING

Minimum clearances between the water heater and combustible and noncombustible construction are: 0 inches from sides, 0 inches from back, 4 inches from front of jacket to closet door and 3 inches from top of jacket to combustible and noncombustible material. Minimum vent clearance: 0 inches. Provide 24 inches front clearance for servicing and adequate clearance between the jacket top & ceiling for servicing the flue area. (See Figure 1).

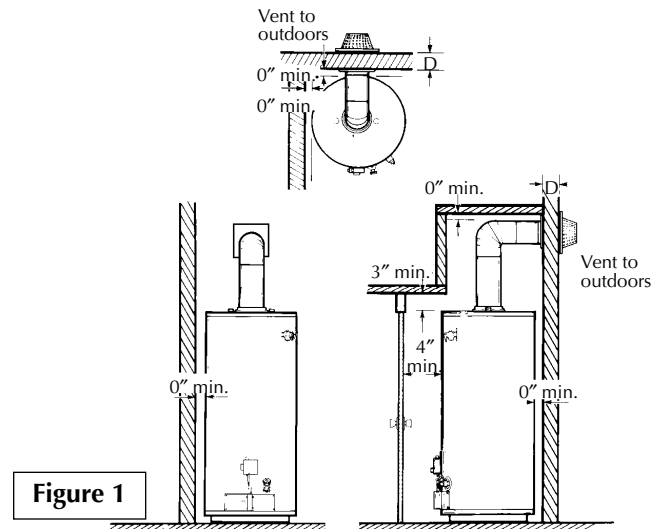


Figure 1

## Combustion Air and Ventilation

When determining the installation location for a direct vent water heater, snow accumulation and drifting should be considered in areas where applicable.

### VENTING CLEARANCES

- 18" minimum in all directions from any obstruction that may interfere.
- 18" minimum from the ground and 12" from ceiling overhangs. Figure 2, page 8.
- The direct vent terminal shall terminate at least 3 feet above any forced air inlet located within 10 feet. Figure 3, page 8.

# Locating the New Water Heater (cont'd)

## Combustion Air and Ventilation (cont'd)

### Venting Clearances (cont'd)

- 9" minimum horizontally from or above any door, window or gravity air inlet into the building (50,000 BtuH input or less.)
- 12" minimum horizontally from or above any door, window or gravity air inlet into the building (over 50,000 BtuH input).
- 12" minimum below any door, window or gravity air inlet into the building (50,000 BtuH input or less).
- 18" minimum below any door, window or gravity air inlet into the building (over 50,000 BtuH input).
- 18" minimum from other gravity or natural appliance outlet vents when directly above or 135° to either side of center line. Figure 4.
- 36" minimum from any outlet vents when directly below or 45° to either side of center line. Figure 5.
- 36" minimum in all directions from any other forced air appliance outlet vent. Figure 5.
- The location selection must provide clearances for servicing and proper operation of the water heater. Figure 6.
- Vent termination must not be within 4 feet of any items such as gas meters, gas valves or other gas regulating equipment.

#### ▲ WARNING

Vent termination must not be within 4 feet of any items such as gas meters, gas valves or other gas regulating equipment.

#### ▲ WARNING

Failure to have required clearances between vent piping and combustible material will result in a fire hazard.

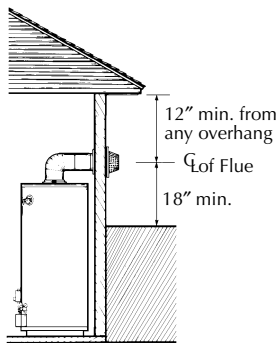


Figure 2

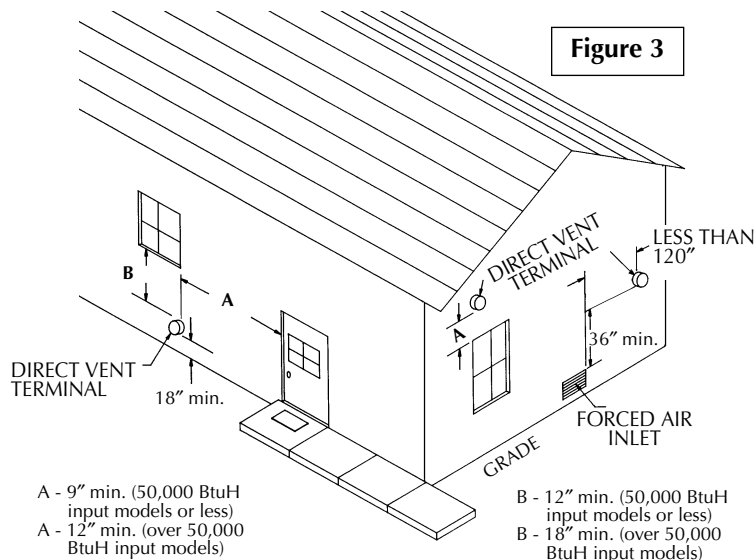


Figure 3

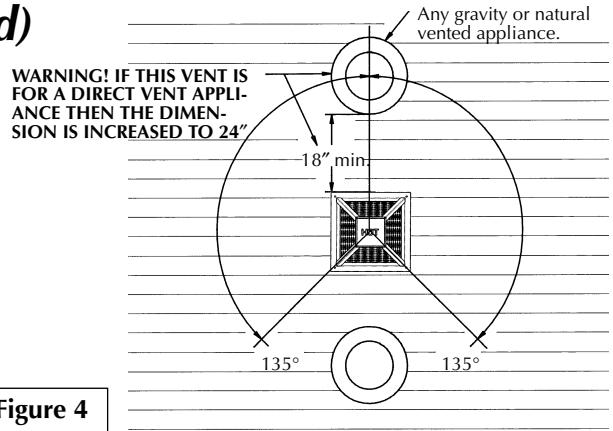
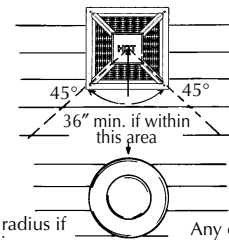


Figure 4

WARNING! IF THIS VENT IS FOR A DIRECT VENT APPLIANCE THEN THE DIMENSION IS INCREASED TO 24"



36" min. within a 360° radius if vent is a forced air appliance outlet vent.

Any other gravity or natural appliance outlet vent.

Figure 5

Must maintain adequate service and maintenance accessibility.

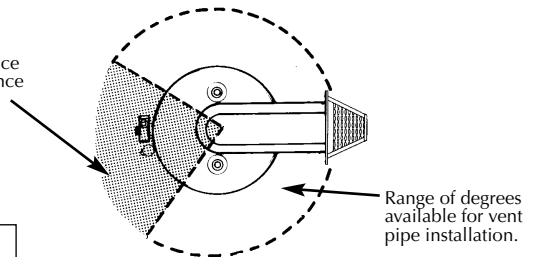


Figure 6

### OPTIONAL WIRE GRILL

When the water heater vent cap is low enough to be touched accidentally, or is accessible to small children, installation of a protective vent cover is recommended. Some local codes may require a vent cap cover. Figure 7 shows the optional wire vent cap protector available from the water heater manufacturer.

A wire mesh chain link fence (as shown in Figure 7) may be used instead of the factory cover. Care should be taken to maintain adequate ventilation around the vent cap. If a chain link fence is installed, it must not be used as a storage area for items that may block proper ventilation.

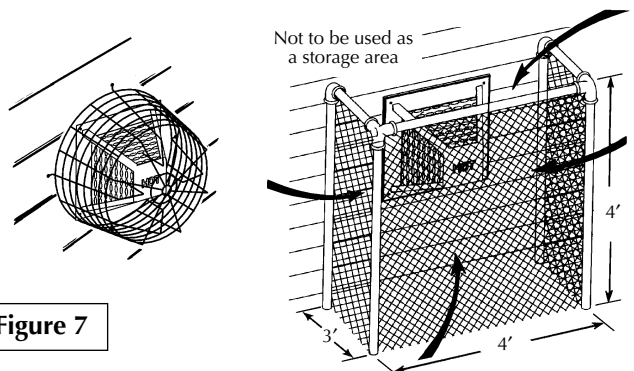


Figure 7



# Locating the New Water Heater (cont'd)

## Flue Extensions

There are three optional extension kits available. Any combination of the three kits can be chosen; however, only one kit can be used vertically and/or horizontally. (See Figures 8 & 9.)

Unless otherwise specified at the time of ordering, a standard extension kit (9000687) is individually packaged and shipped within the water heater carton.

### POSSIBLE EXTENSION COMBINATIONS

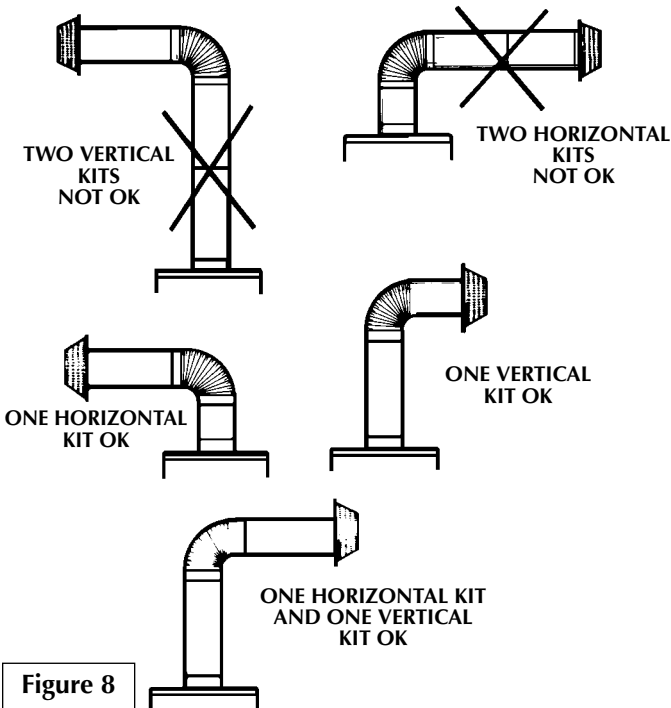


Figure 8

### ▲ WARNING

At no time can more than one Vertical and/or one Horizontal Vent Kit be used.

### VERTICAL (EXTENSION KIT) HEIGHT

It is simple to determine which kit is needed for vertical height. Take the total height (to the top of the flue) required and comparing that to "F dim." in the chart #1, it can be determined which kit needs to be used vertically.

### ▲ WARNING

Failure to have required clearances between vent piping and combustible material will result in a fire hazard.

### ▲ WARNING

Obstructions and deteriorated vent systems may present serious health risk or asphyxiation.

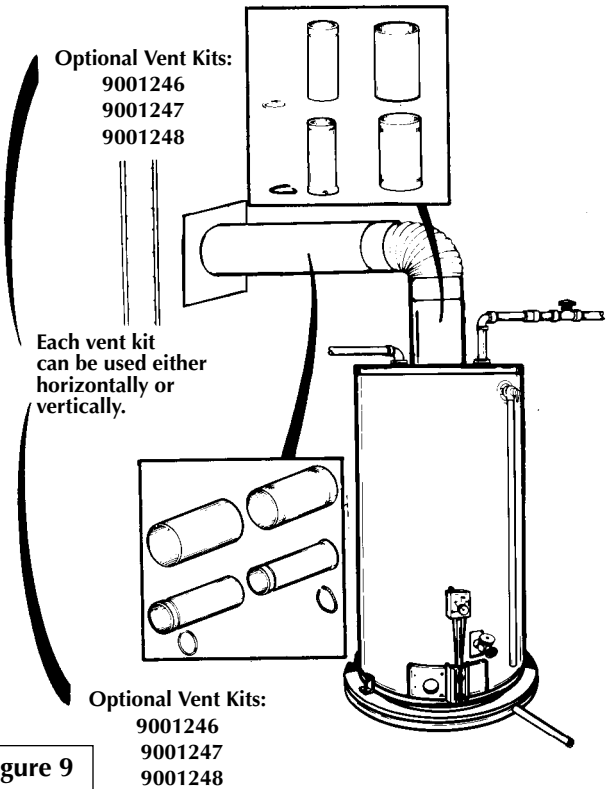


Figure 9

NOTE: Only one vent kit can be used horizontally and/or vertically.

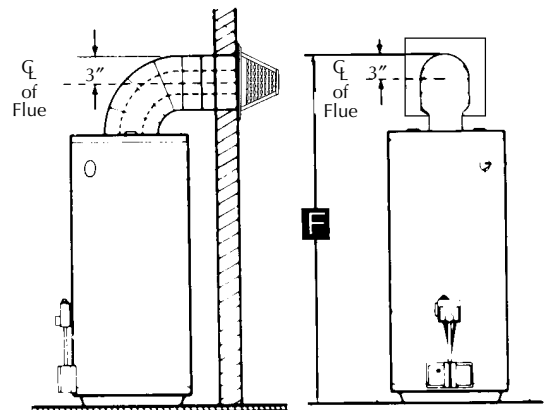


CHART #1

*GAL. CAP.	BTU's in 1000's NAT./L.P.	F DIMENSION						
		9000687 STD.	9001246 MIN	9001246 MAX	9001247 MIN	9001247 MAX	9001248 MIN	9001248 MAX
40	36/36	63 <sup>3</sup> / <sub>4</sub>	72	77	77	88	88	110
50	38/38	72	80 <sup>3</sup> / <sub>4</sub>	86	86 <sup>1</sup> / <sub>4</sub>	97 <sup>1</sup> / <sub>4</sub>	97 <sup>1</sup> / <sub>4</sub>	118 <sup>3</sup> / <sub>4</sub>
40	40/40	63 <sup>3</sup> / <sub>4</sub>	72	77	77	88	88	110
50	48/44	76	84 <sup>1</sup> / <sub>4</sub>	89 <sup>3</sup> / <sub>4</sub>	89 <sup>3</sup> / <sub>4</sub>	100 <sup>3</sup> / <sub>4</sub>	100 <sup>3</sup> / <sub>4</sub>	122 <sup>3</sup> / <sub>4</sub>
75	55 NAT.	76 <sup>1</sup> / <sub>4</sub>	84 <sup>1</sup> / <sub>2</sub>	89 <sup>1</sup> / <sub>2</sub>	89 <sup>1</sup> / <sub>2</sub>	100 <sup>1</sup> / <sub>2</sub>	100 <sup>1</sup> / <sub>2</sub>	122 <sup>1</sup> / <sub>2</sub>

\*See models and rating plate attached to the water heater for specific model number and other detailed information.

# Locating the New Water Heater (cont'd)

## HORIZONTAL (EXTENSION KIT)

To determine the horizontal length and extension kit needed, simply plug the dimensions "D" and "G" into the equation below. The answer "E" should then be located in chart #2. The size range in which "E" dimension falls indicates the kit that should be used horizontally to obtain the desired length.

"D" = The wall thickness

"G" = The distance wanted between the edge of the water heater and the **inside** edge of the wall

"E" = The distance the extension kit must be able to extend

**The Equation**  $D + G = E$

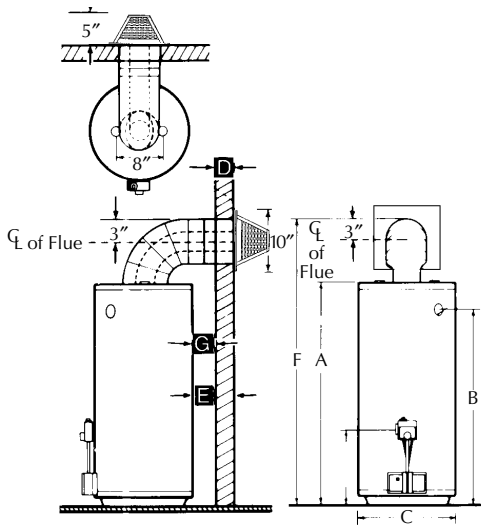


CHART #2

VENT KITS	E DIMENSION			
	40-50 Gal.		75 Gal.	
	MIN	MAX	MIN	MAX
9000687-Std.	3½	10	7⁄8	7³⁄₈
9001246	10	15½	7³⁄₈	12⁷⁄₈
9001247	15½	26½	12⁷⁄₈	23⁷⁄₈
9001248	26½	48	23⁷⁄₈	45³⁄₈

*GAL. CAP.	*BTU'S in 1000's NAT/L.P.	A	B	C
40	36/36	48¾	41¾	21
50	38/38	57½	50½	21
40	40/40	48¾	41¾	21
50	48/44	61	54	21
75	55 NAT.	63	54¾	26¼

\*See models and rating plate attached to the water heater for specific model number and other detailed information

### ▲ WARNING

Be sure vent pipe is properly connected to prevent escape of dangerous flue gases which could cause deadly asphyxiation.

### ▲ WARNING

Obstructions and deteriorated vent systems may present serious health risk or asphyxiation.

# Installing the New Water Heater

## All Installations

For ease of assembly the installation of the various kit combinations has been broken into individual sections. The two steps below are common to all installations. Once these have been performed, you need only to refer to the type installation that pertains to you.

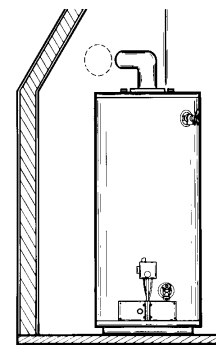
### Installation Using Vent Kits:

1. Standard Vent Kit 9000687 .....Page 11
2. Optional Vertical Vent Kit.....Page 14 with Standard Vent Kit
3. Optional Horizontal Vent Kit.....Page 17
4. Optional Horizontal .....Page 20 and Vertical Vent Kits

## CUTTING THE OPENING THROUGH THE OUTSIDE WALL

After thoroughly reading the "Locating the New Water Heater" section of this manual and you have chosen a suitable water heater installation site, use the chart below to determine dimensions for the opening in the wall.

Cut a 6¼" diameter hole completely through the outside wall.



## WATER HEATER ATTITUDE

There is a certain amount of variance with regard to the direction the water heater faces.

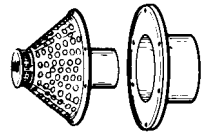
Standing in front of the water heater (gas control facing you), set the 3" diameter elbow (slotted end) on the flue. This will give you a better understanding of the relation of the vent assembly to the opening in the wall and more importantly any possibly of interference of venting and water piping.

The direction of the water heater can now be made. Also consider the gas control valve to insure installation, lighting, and maintenance accessibility are retained.

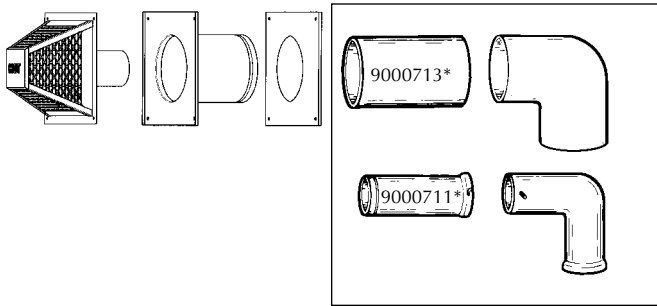
# Installing the New Water Heater (cont'd)

## Standard Vent Kit Installation #1

**NOTE:** Supplementary installation instructions are applicable only if this direct vent water heater is provided with the alternate brown porcelain-enameled vent cap assembly and the 6" vent wall assembly shown to the right. See pages 24 and 25.



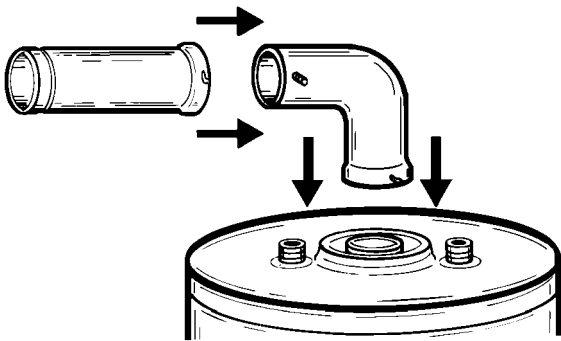
Standard Vent Kit 9000687



\* Each part is stamped with a part number

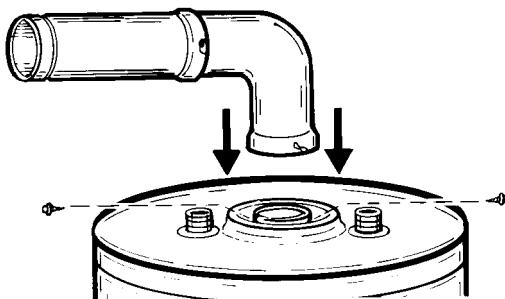
The opening through the wall should be cut at this time. If it hasn't been, refer back to that section.

1. Lock the elbow to the straight 3" flue pipe. Set this assembly in place on the end of the water heater's flue collar.

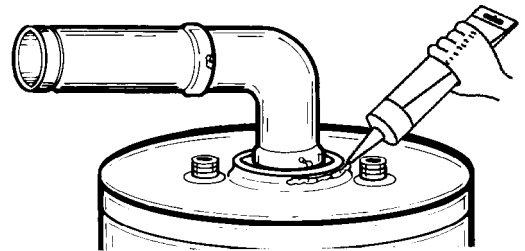


2. Mark the flue collar at the slots in the elbow. Using a #22 drill bit, drill holes into the flue collar at the two slots and secure the elbow to the flue collar using the screws provided.

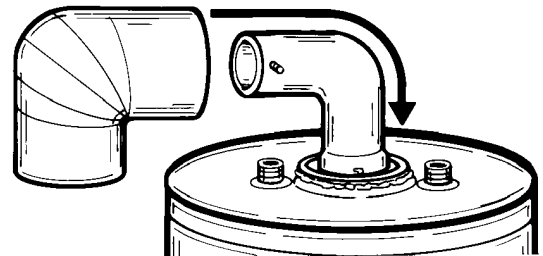
**NOTE:** Make sure elbow is properly aligned to opening in the outside wall.



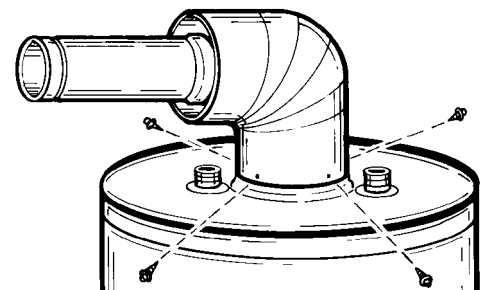
3. Using the tube of sealant supplied, run an ample amount around the oval flare of the jacket.



4. First remove the 3" horizontal extension from the elbow. Starting with the long end (with four securing holes), place the 6" diameter vent elbow over the 3" diameter elbow. Bend the round end "oval" to fit the flared oval end of the jacket top.



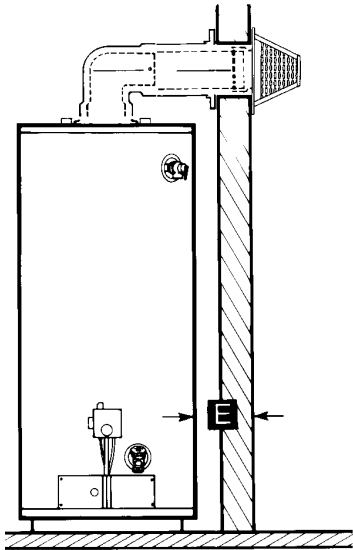
5. Making sure the 6" diameter elbow is centered around the 3" diameter flue, secure the 6" diameter vent pipe using four sheet metal screws at the connection of the jacket top.



# Installing the New Water Heater (cont'd)

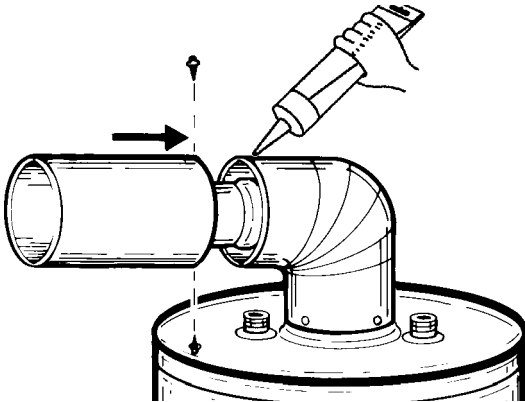
## Standard Vent Kit (cont'd)

6. The standard vent kit includes a 6" diameter extension pipe which is used when "E" dimension is over 6½".

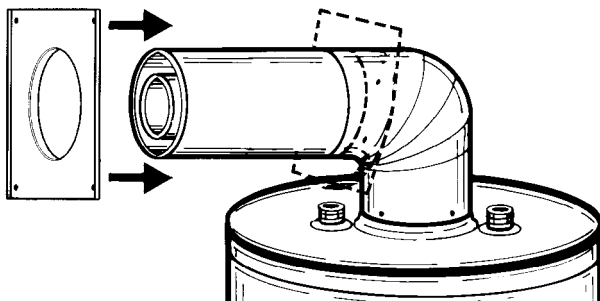


7. If "E" dimension is less than 6½" move to next step.

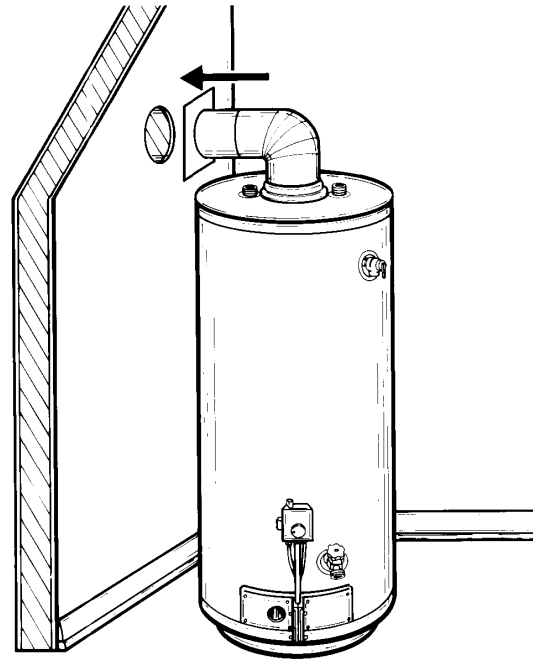
If "E" dimension is over 6½", assemble the 6" diameter extension pipe (crimped end) to the 6" diameter vent elbow and secure using two sheet metal screws.



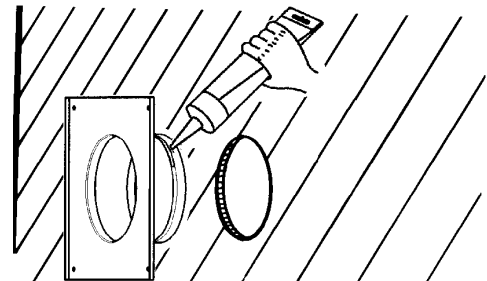
8. Slide the vent collar (to be installed later) over the 6" vent elbow.



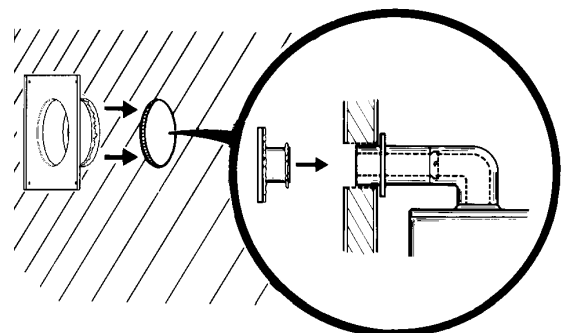
9. Place the water heater at the opening in the wall, at the predetermined clearance.



10. Move outdoors with all the remaining vent parts. Using the tube of sealant supplied, run an ample amount on the inside surface of the collar assembly that will contact the exterior wall and also fill the bead on the end of the 6" diameter vent collar.



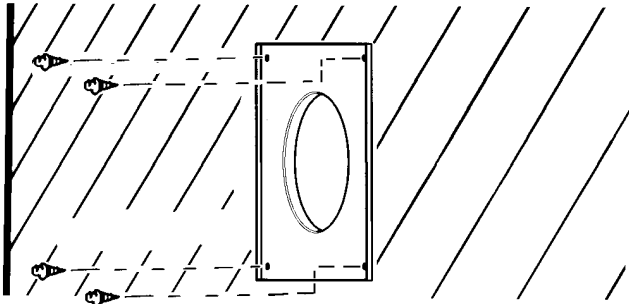
11. Install the vent collar assembly through the wall, connecting it to the extension and/or elbow (depending on which one was used).



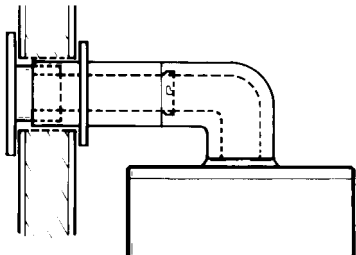
# Installing the New Water Heater (cont'd)

## Standard Vent Kit (cont'd)

12. We have supplied 4 wood screws to temporarily attach the collar to the exterior wall of the building. However, other types of screws may have to be substituted depending on the material used in the construction of the exterior wall.

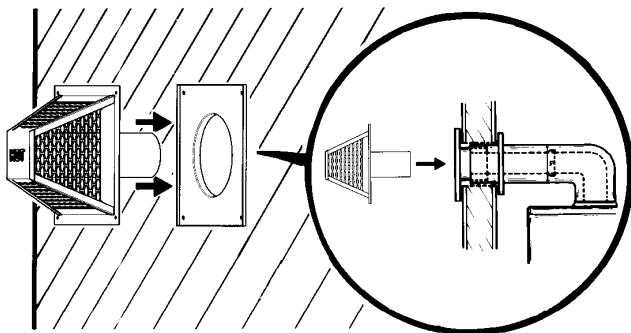


13. Insert the 3" diameter flue extension pipe into the vent collar assembly (flared & notched end first) and lock (turn clockwise to lock studs to slots) the flue extension pipe to the flue elbow.



14. Connect the vent cap by sliding its end over the 3" diameter extension pipe and O-ring.

**NOTE:** To facilitate ease of assembly of the vent cap to the 3" pipe, a soap solution can be applied to the O-ring gasket.

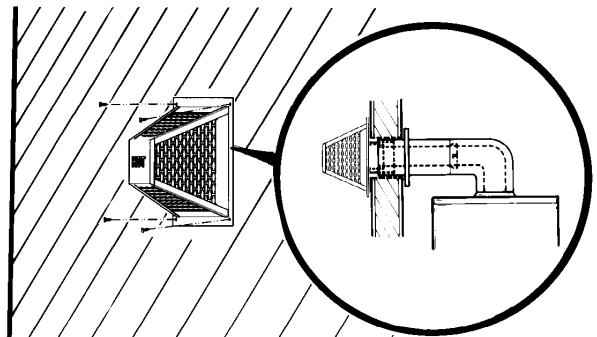


15. The vent cap has 4 holes around the outer edge. Remove the 4 screws used to temporarily attach the collar to the exterior wall. Then secure the vent cap assembly with the vent collar assembly to the exterior wall using the same 4 screws.

**NOTE:** Screws are supplied; however, substitution may be necessary depending on the exterior wall material.

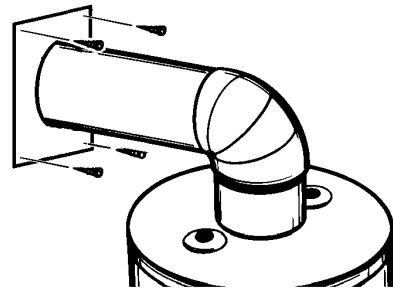
### ⚠ CAUTION

To prevent unlocking the previously installed 3" diameter extension, the vent cap assembly must be rotated in a clockwise motion when the vent cap is installed.

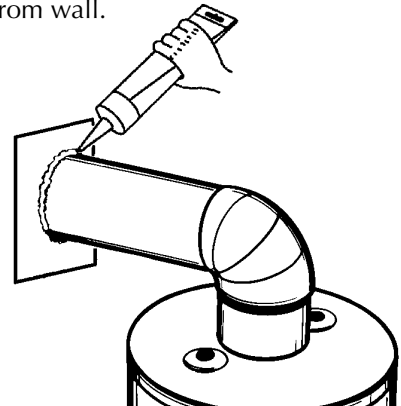


16. Go back indoors to attach inside collar to the inside wall. Place the collar against the wall. Secure to wall by using 4 long sheet metal screws.

**NOTE:** Screws are supplied; however, substitution may be necessary depending on the interior wall material.



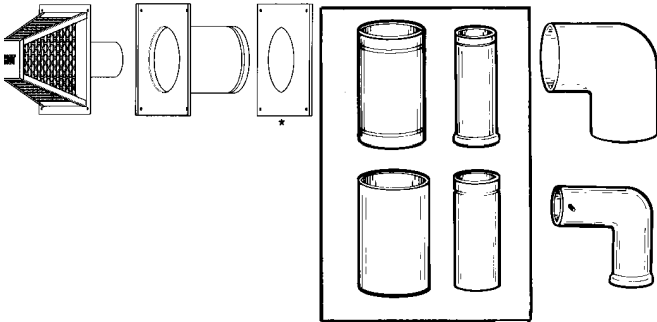
17. Using the tube of sealant supplied, run an ample amount of sealant around the edge of the vent pipe where it is inserted through the inside collar to seal air drafts from wall.



# Installing the New Water Heater (cont'd)

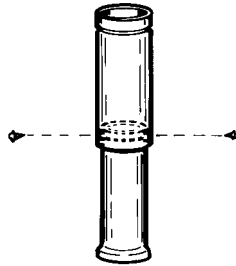
## Optional Vertical Vent Kit With Standard Horizontal Vent Kit Installation #2

Any Optional Vent Kit



The opening through the wall should be cut at this time. If it hasn't been, refer back to that section.

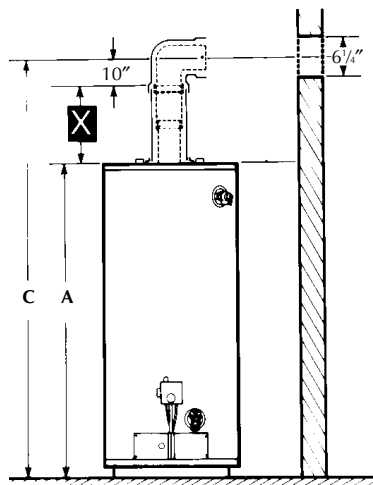
1. First it must be determined how far the vertical (3" dia.) telescoping flue sections are set and locked together using the two screws supplied as shown below.



Use the chart, drawing and simple equation below to find the length of expansion of the telescoping flue sections. Because of manufacturing tolerances, place the telescoping extension on the water heater and adjust the height ("X" Dimension) and mark the point. Once the length has been determined, lock the two sections together by drilling two holes (180° apart) in the pipe and securing with the screws supplied.

$$C - A - 10'' = X$$

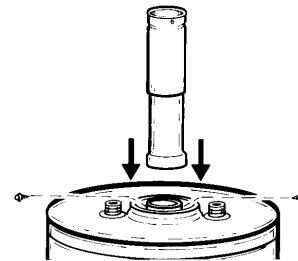
\* Each part is stamped with a part number



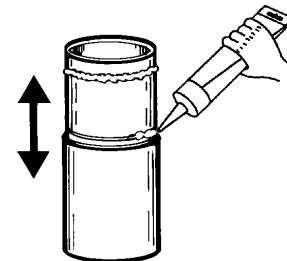
*GALLON CAPACITY	*BTU's in 1000's NAT./L.P.	A
40	36/36	48 <sup>3</sup> / <sub>4</sub>
50	38/38	57 <sup>1</sup> / <sub>2</sub>
40	40/40	48 <sup>3</sup> / <sub>4</sub>
50	48/44	61
75	55 NAT.	63

\*See models and rating plate attached to the water heater for specific model number and other detailed information.

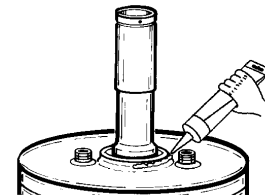
2. Set the vertical (3" dia.) telescoping flue section in place on the flue collar. Using a #22 drill bit, drill two holes (180° apart) and secure the vertical assembly to the flue collar.



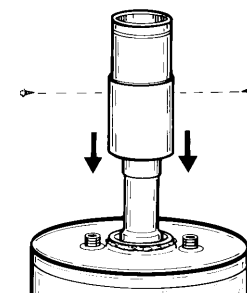
3. Slide the 6" vent telescoping section apart to reveal the beads. Using the caulking supplied, fill the beads.



4. Using the tube of sealant supplied, run an ample amount around the oval flare of the jacket.



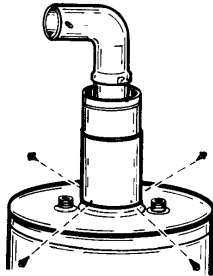
5. Place the 6" vent section over the 3" flue section. Subtract <sup>3</sup>/<sub>4</sub>" from the X dimension used earlier and this gives the length of the 6" vent extension. Slide the 6" vent extension apart to this dimension and lock it together using the two screws supplied.



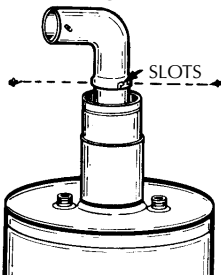
# Installing the New Water Heater (cont'd)

## Optional Vertical Vent Kit (cont'd)

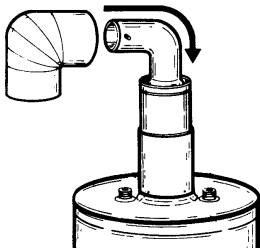
6. Bend the round end of the 6" vent extension oval at the jacket top and secure it using four sheet metal screws.



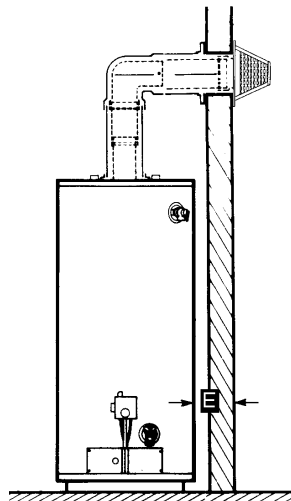
7. Place the 3" elbow on the flue extension.  
**NOTE: Make sure elbow is properly aligned to opening in the outside wall.**  
Mark the 3" dia. end of the flue extension at the slots the elbow. Using a #22 drill bit, drill holes into the flue extension at the two slots and secure the elbow to the flue extension using the screws provided.



8. Making sure the 6" diameter elbow is centered around the 3" diameter flue, secure the 6" diameter vent pipe using two sheet metal screws at the connection of the elbow and 6" vertical extension.

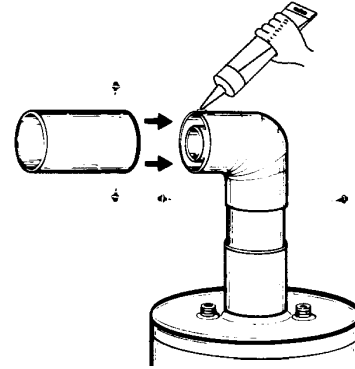


9. The standard vent kit includes a 6" diameter extension pipe which is used when "E" dimension over 6 1/2".

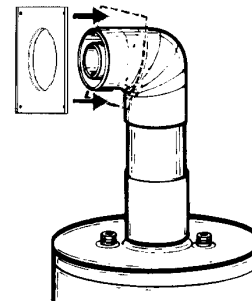


10. If "E" Dimension is less than 6 1/2" move to next step.

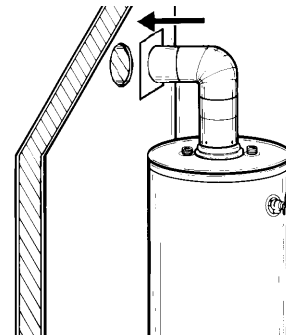
If "E" dimension is over 6 1/2", assemble the 6" diameter extension pipe to the 6" diameter vent elbow and secure using two sheet metal screws. Using the tube of sealant supplied, run an ample amount around the joint to insure a good seal.



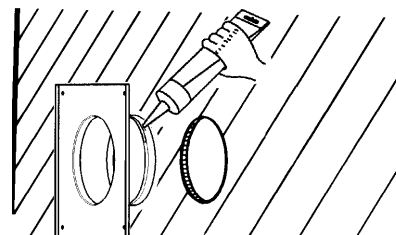
11. Slide the vent collar (to be installed later) over the 6" vent elbow.



12. Place the water heater at the opening in the wall, at the predetermined clearance.



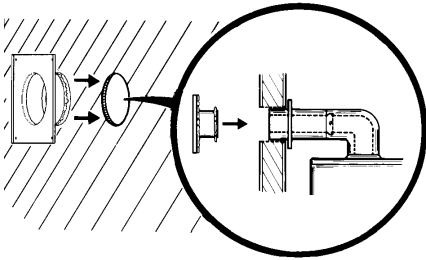
13. Move outdoors with all the remaining vent parts. Using the tube of sealant supplied, run an ample amount on the inside surface of the collar assembly that will contact the exterior wall and also fill the bead on the end of the 6" diameter vent collar.



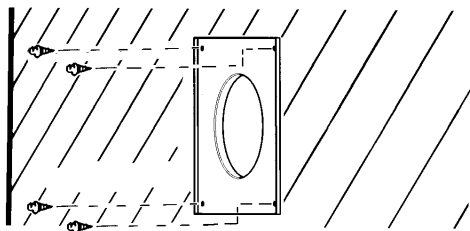
# Installing the New Water Heater (cont'd)

## Optional Vertical Vent Kit (cont'd)

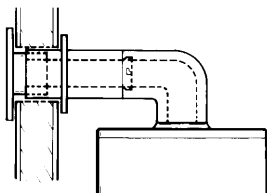
14. Install the vent collar assembly through the wall, connecting it to the extension and/or elbow (depending on which one was used).



15. We have supplied 4 wood screws to temporarily attach the collar to the exterior wall of the building. However, other types of screws may have to be substituted depending on the construction of the exterior wall.

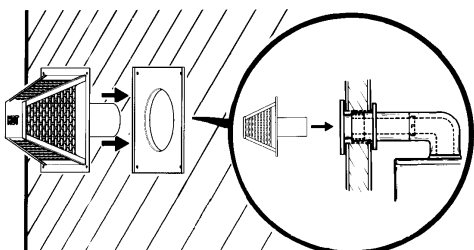


16. Insert the 3" diameter flue extension pipe into the vent collar assembly (flared & notched end first) and lock (turn clockwise to lock studs to slots) the flue extension pipe to the flue elbow.



17. Connect the vent cap by sliding its end over the 3" diameter extension pipe and O-ring.

**NOTE:** To facilitate ease of assembly of the vent cap to the 3" pipe, a soap solution can be applied to the O-ring gasket.

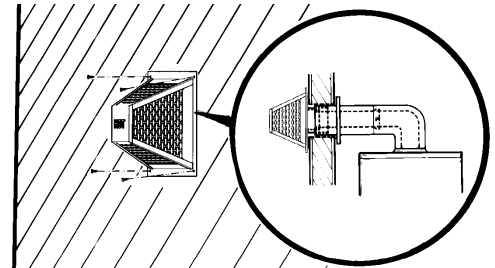


18. The vent cap has 4 holes around the outer edge. Remove the 4 screws used to temporarily attach the collar to the exterior wall. Then secure the vent cap assembly with the vent collar assembly to the exterior wall using the same 4 screws.

**NOTE:** Screws are supplied; however, substitution may be necessary depending on the exterior wall material.

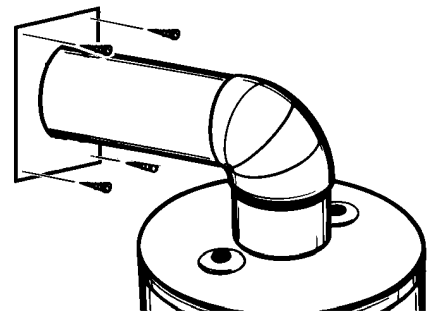
### CAUTION

To prevent unlocking the previously installed 3" diameter extension, the vent cap assembly must be rotated in a clockwise motion when the vent cap is installed.

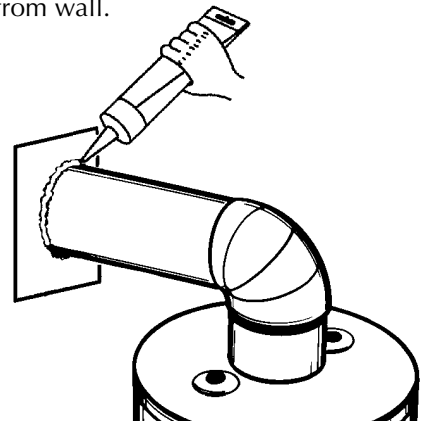


19. Go back indoors to attach inside collar to the inside wall. Place the collar against the wall. Secure to wall by using 4 long sheet metal screws.

**NOTE:** Screws are supplied; however, substitution may be necessary depending on the interior wall material.



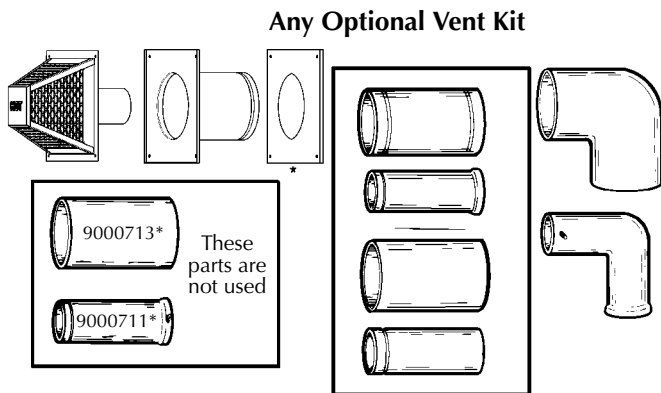
20. Using the tube of sealant supplied, run an ample amount of sealant around the edge of the vent pipe where it is inserted through the inside collar to seal air drafts from wall.





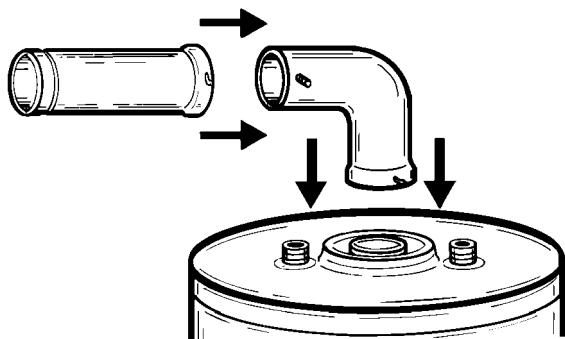
# Installing the New Water Heater (cont'd)

## Optional Horizontal Vent Kit Installation #3



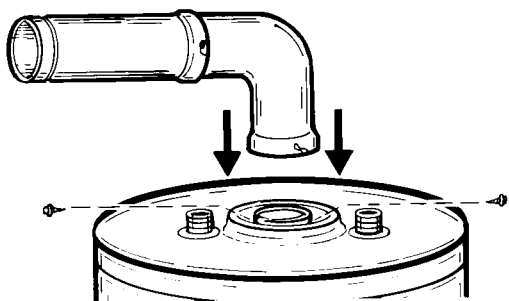
The opening through the wall should be cut at this time. If it hasn't been, refer back to that section.

1. Lock the elbow to the straight 3" flue pipe. Set the assembly in place on the end of the water heater's flue collar.

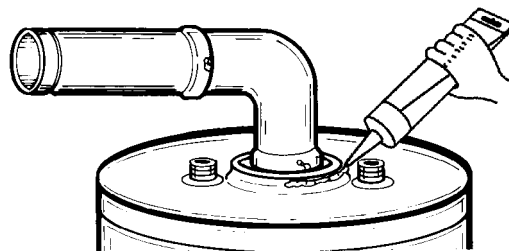


2. Mark the flue collar at the slots in the elbow. Using a #22 drill bit, drill holes into the flue collar at the two slots and secure the elbow to the flue collar using the screws provided.

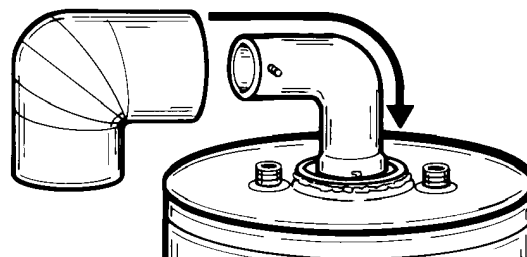
**NOTE:** Make sure elbow is properly aligned to opening in the outside wall.



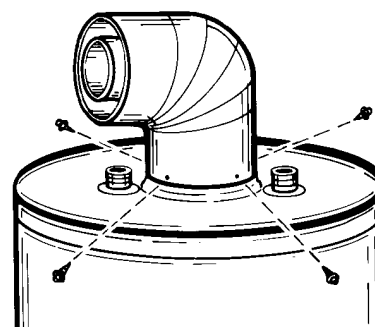
3. Using the tube of sealant supplied, run an ample amount around the oval flare of the jacket.



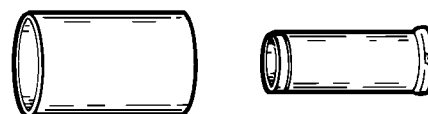
4. First remove the 3" horizontal extension from the elbow. Starting with the long end (with four securing holes), place the 6" diameter vent elbow over the 3" diameter elbow. Bend the round end "oval" to fit the flared oval end of the jacket top.



5. Making sure the 6" diameter elbow is centered around the 3" diameter flue, secure the 6" diameter vent pipe using four sheet metal screws at the connection of the jacket top.



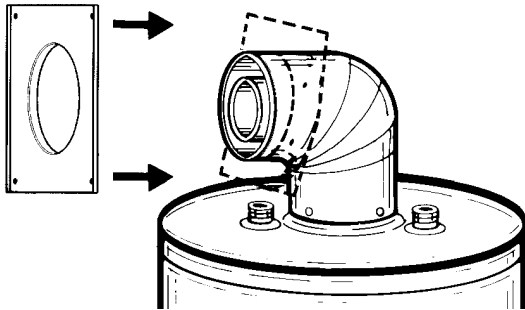
6. The standard kit includes a single piece of 3" flue and 6" vent pipe which will not be used in conjunction with the horizontal kit.



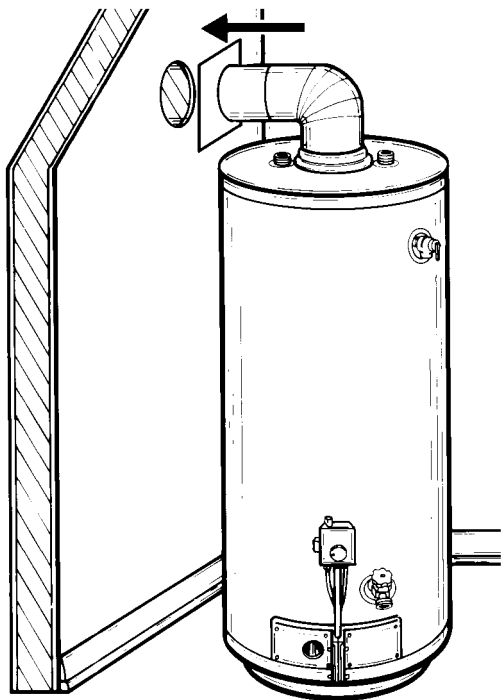
# Installing the New Water Heater (cont'd)

## Optional Horizontal Vent Kit (cont'd)

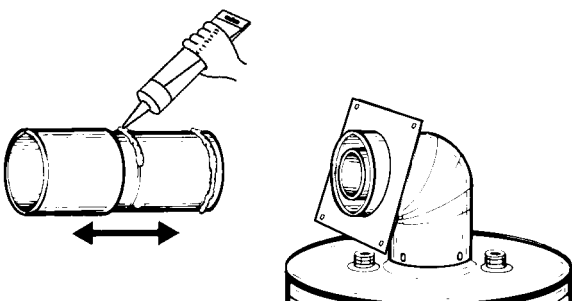
7. Slide the vent collar (to be installed later) over the 6" vent elbow.



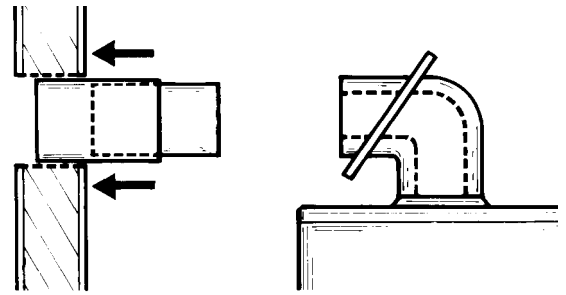
8. Place the water heater at the opening in the wall, at the predetermined clearance.



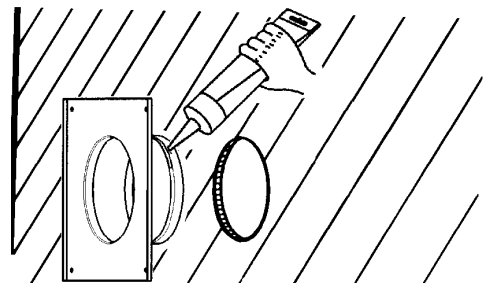
9. Slide the 6" telescoping vent section apart to reveal the beads.  
**NOTE: The section of 6" pipe with beads will connect to the elbow. Using the caulking supplied, fill the beads.**



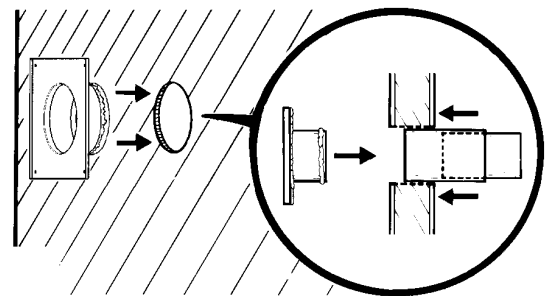
10. Insert the 6" telescoping vent section into the wall.



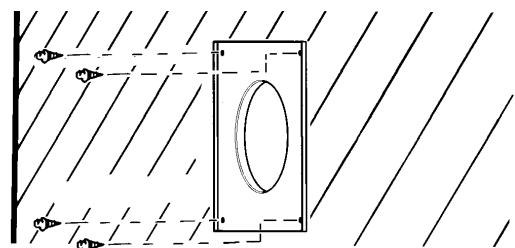
11. Move outdoors with all the remaining vent parts. Using the tube of sealant supplied, run an ample amount on the inside surface of the collar assembly that will contact the exterior wall and also fill the bead on the end of the 6" diameter vent collar.



12. Install the vent collar assembly through the wall, connecting it to the 6" telescoping extension. Remember, the extension is not connected yet and it may be necessary to go back indoors and push it back up for a tight fit to the collar.



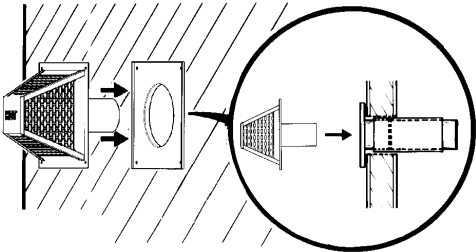
13. We have supplied 4 wood screws to temporarily attach the collar to the exterior wall to the building. However, other types of screws may have to be substituted depending on the construction of the exterior wall.



# Installing the New Water Heater (cont'd)

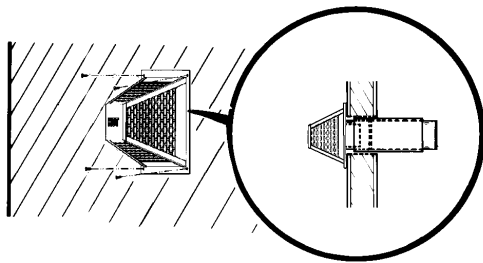
## Optional Horizontal Vent Kit (cont'd)

14. Place the vent cap in the vent collar assembly.



15. The vent cap has 4 holes around the outer edge. Remove the 4 screws used to temporarily attach the collar to the exterior wall. Then secure the vent cap assembly with the vent collar assembly to the exterior wall using the same 4 screws.

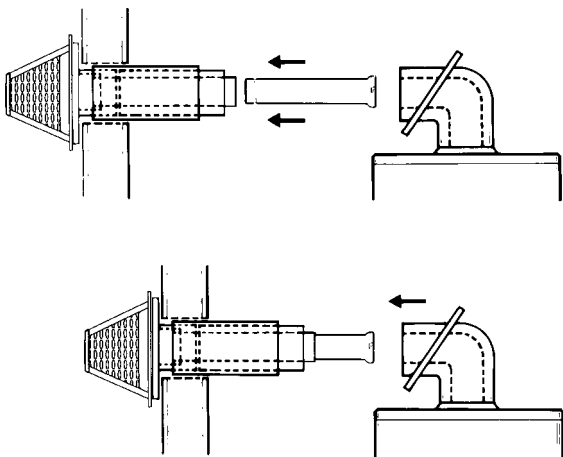
**NOTE:** Screws are supplied; however, substitution may be necessary depending on the exterior wall material.



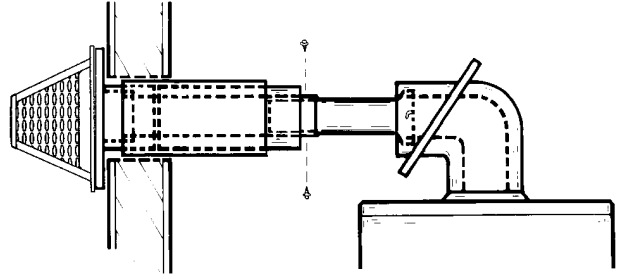
16. Move indoors to complete the assembly process.

17. Collapse the 6" flue extension assembly as shown below and install the 3" extension by first slipping the end with the O-ring approximately 1 1/4" into the end of the vent cap. Lock the other end of the 3" extension to the studs in the elbow.

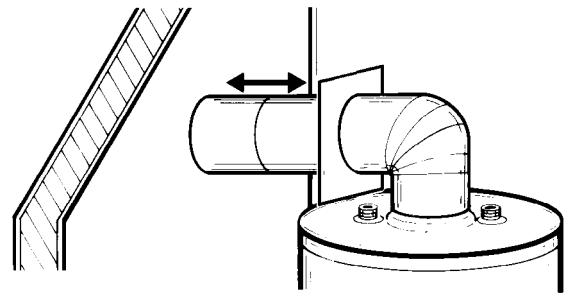
**NOTE:** To facilitate ease of assembly of the vent cap to the 3" pipe, a soap solution can be applied to the O-ring gasket.



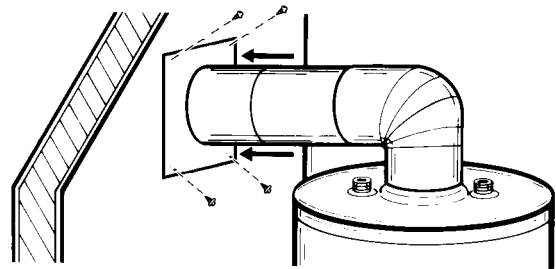
18. Using a #22 drill bit, drill holes 180° apart at the connection point of the two 3" flue extensions. Then using 2 screws provided, lock these pipes together.



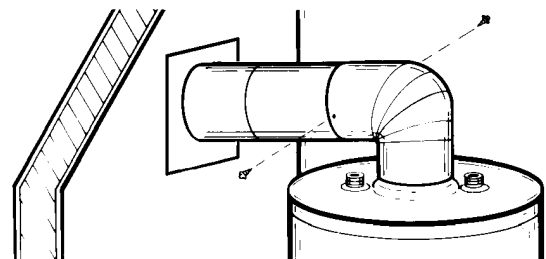
19. Now the 6" vent extension pipes can be expanded to connect at the vent elbow.



20. Pull the vent collar from the elbow to be against the wall and secure it using the screws provided.



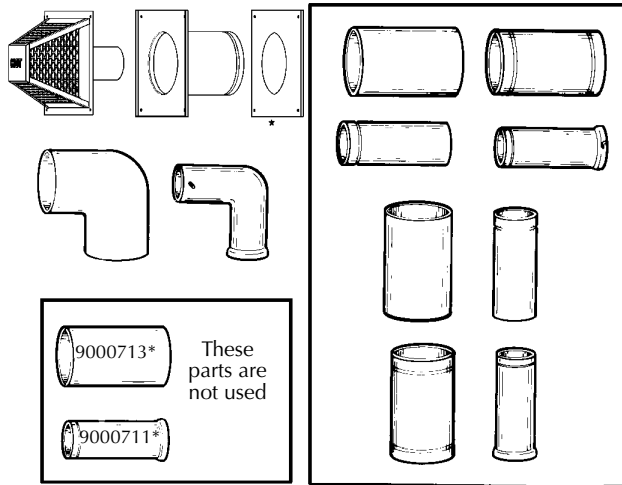
21. Lock the 6" vent extension to the vent elbow by using two screws provided, placing them 180° apart.



# Installing the New Water Heater (cont'd)

## Optional Vertical and Horizontal Vent Kit Installation #4

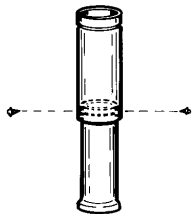
Any Two Optional Vent Kits



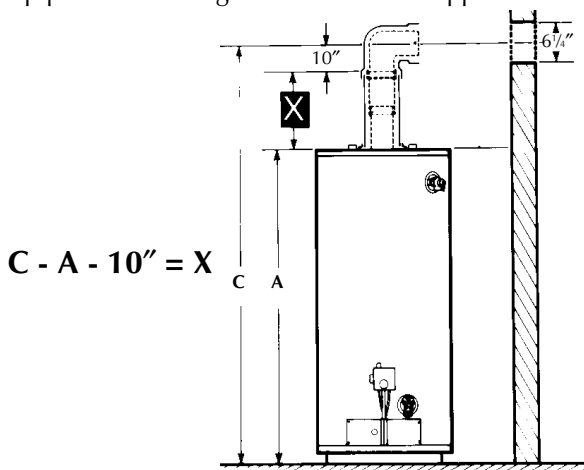
\* Each part is stamped with a part number

The opening through the wall should be cut at this time. If it hasn't been, refer back to that section.

1. First it must be determined how far the vertical (3" dia.) telescoping flue sections are set and locked together using the two screws supplied as shown below.



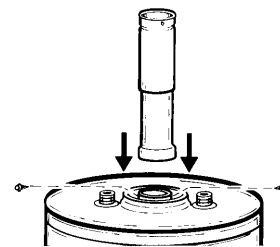
Use the chart, drawing and simple equation below to find the length of expansion of the telescoping flue sections. Because of manufacturing tolerances, place the telescoping extension on the water heater and adjust the height ("X" Dimension) and mark the point. Once the length has been determined, lock the two sections together by drilling two holes (180° apart) in the pipe and securing with the screws supplied.



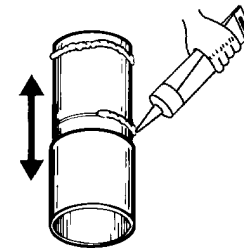
*GALLON CAPACITY	*BTU's in 1000's NAT./L.P.	A
40	36/36	48 <sup>3</sup> / <sub>4</sub>
50	38/38	57 <sup>1</sup> / <sub>2</sub>
40	40/40	48 <sup>3</sup> / <sub>4</sub>
50	48/44	61
75	55 NAT.	63

\*See models and rating plate attached to the water heater for specific model number and other detailed information.

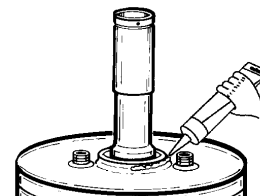
2. Set the vertical (3" dia.) telescoping flue section in place on the flue collar. Using a #22 drill bit, drill two holes (180° apart) and screw the vertical assem-



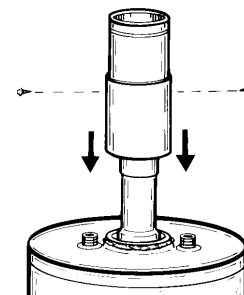
3. Slide the 6" vent telescoping section apart to reveal the beads. Using the caulking supplied, fill the beads.



4. Using the tube of sealant supplied, run an ample amount around the oval flare of the jacket.



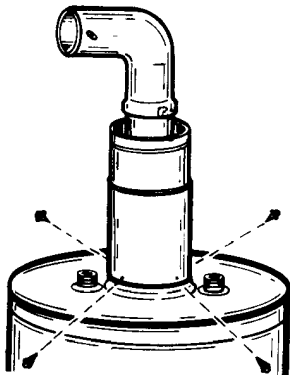
5. Place the 6" vent section over the 3" flue section. Subtract <sup>3</sup>/<sub>4</sub>" from the X dimension used earlier and this gives the length of the 6" vent extension. Slide the 6" vent extension apart to this dimension and lock it together using the two screws supplied.



# Installing the New Water Heater (cont'd)

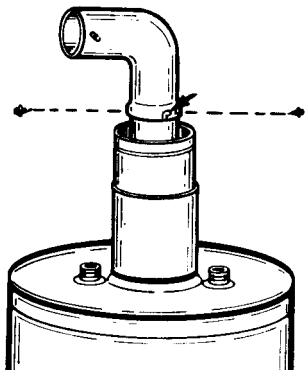
## Optional Vertical and Horizontal Vent Kits (cont'd)

6. Bend the round end of the 6" vent extension oval at the jacket tip and secure it using four sheet metal screws.

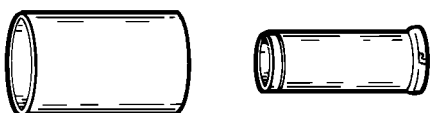


7. Place the 3" elbow on the flue extension.  
**NOTE: Make sure elbow is properly aligned to opening in the outside wall.**

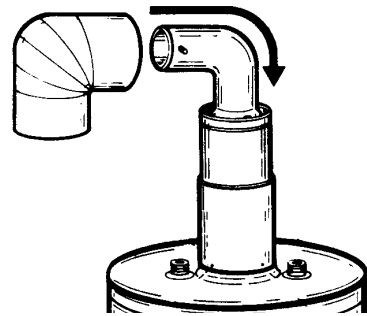
Mark the 3" dia. end of the flue extension at the slots in the elbow. Using a #22 drill bit, drill holes into the flue extension at the two slots and secure the elbow to the flue extension using the screws provided



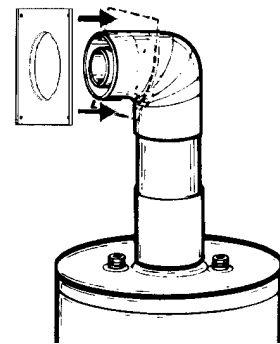
8. The standard kit includes a single piece of 3" flue and 6" vent pipe which will not be used in conjunction with the optional horizontal kit.



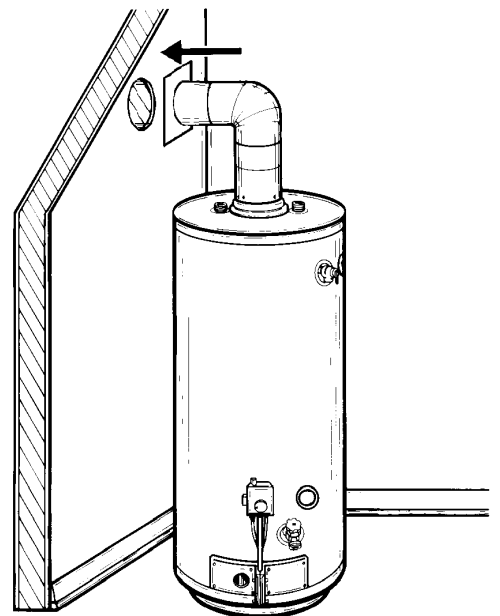
9. Making sure the 6" diameter elbow is centered around the 3" diameter flue, secure the 6" diameter vent pipe using two sheet metal screws at the connection of the elbow and 6" vertical extension.



10. Slide the vent collar (to be installed later) over the 6" vent elbow.



11. Place the water heater at the opening in the wall, at the predetermined clearance.

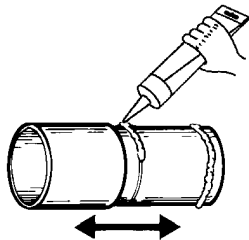


# Installing the New Water Heater (cont'd)

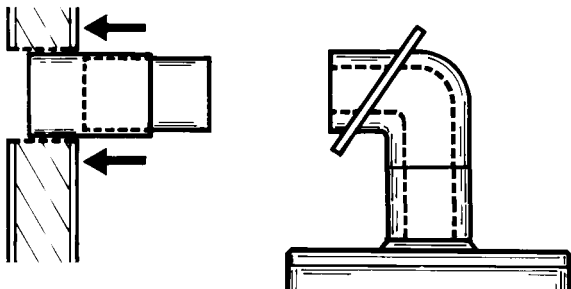
## Optional Vertical and Horizontal Vent Kits (cont'd)

12. Slide the 6" telescoping vent section apart to reveal the beads.

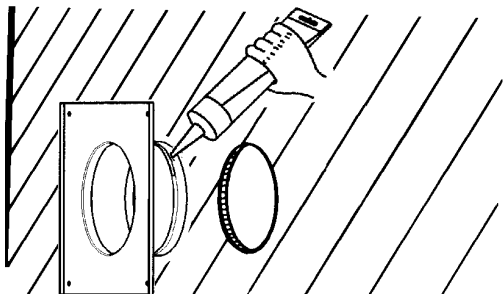
**NOTE: The 6" pipe with beads will connect to the elbow. Using the caulking supplied, fill the beads.**



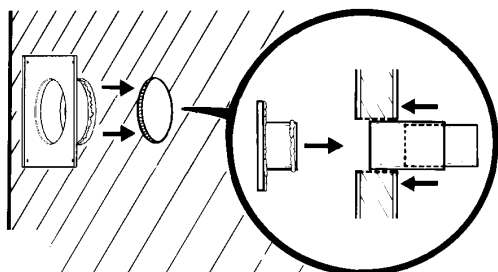
13. Insert the 6" telescoping vent section into the wall.



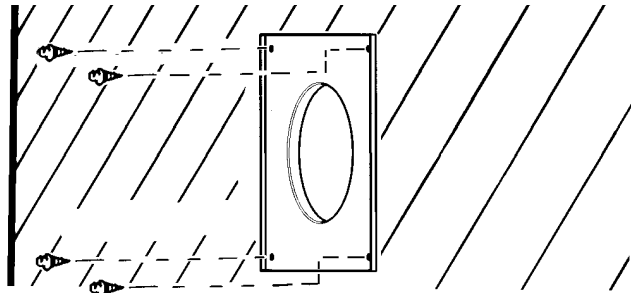
14. Move outdoors with all the remaining vent parts. Using the tube of sealant supplied, run an ample amount on the inside surface of the collar assembly that will contact the exterior wall and also fill the bead on the end of the 6" diameter vent collar.



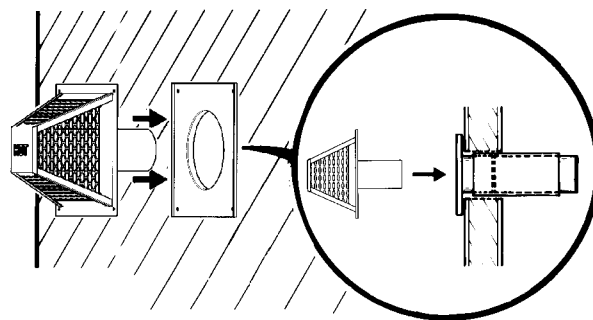
15. Install the vent collar assembly through the wall, connecting it to the 6" telescoping extension. Remember, the extension is not connected yet and it may be necessary to go back indoors and push it back up for a tight fit to the collar.



16. We have supplied 4 wood screws to temporarily attach the collar to the exterior wall of the building. However, other types of screws may have to be substituted depending on the construction of the exterior wall.

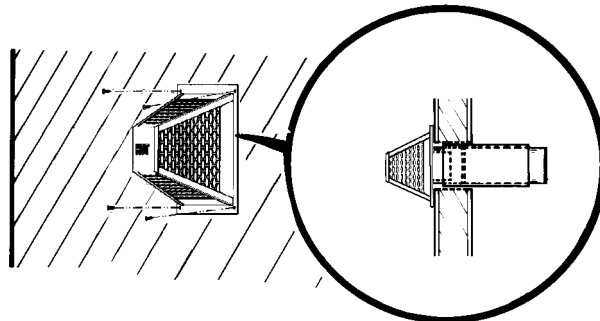


17. Place the vent cap in the vent collar assembly.



18. The vent cap has 4 holes around the outer edge. Remove the 4 screws used to temporarily attach the collar to the exterior wall. Then secure the vent cap assembly with the vent collar assembly to the exterior wall using the same 4 screws.

**NOTE: Screws are supplied; however, substitution may be necessary depending on the exterior wall material.**



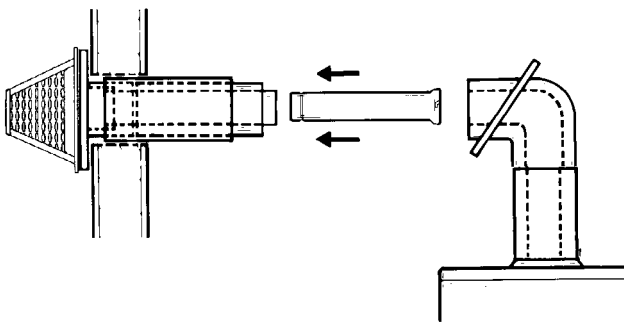
19. Move indoors to complete the assembly process.

# Installing the New Water Heater (cont'd)

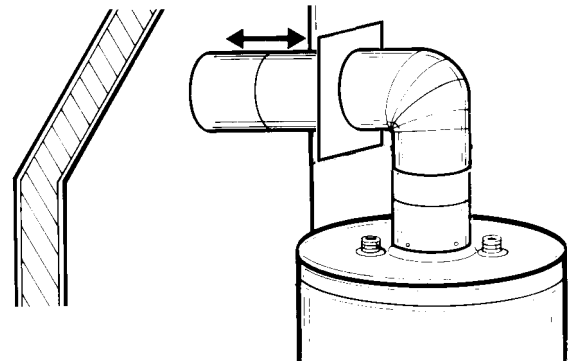
## Optional Vertical and Horizontal Vent Kits (cont'd)

20. Collapse the 6" vent extension pipes as shown below and install the 3" extension by first slipping the end with the O-ring approximately 1/4" into the end of the vent cap. Lock the other end of the 3" extension assembly to the studs in the elbow.

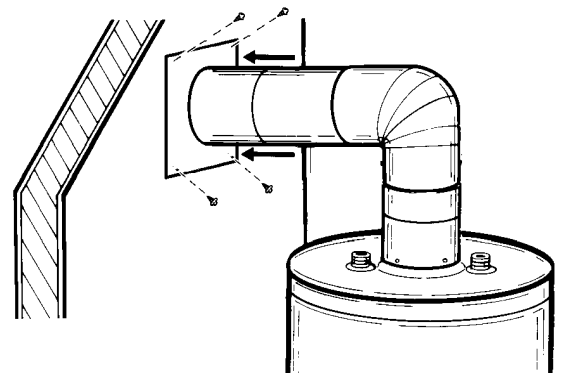
**NOTE:** To facilitate ease of assembly of the vent cap to the 3" pipe, a soap solution can be applied to the O-ring gasket.



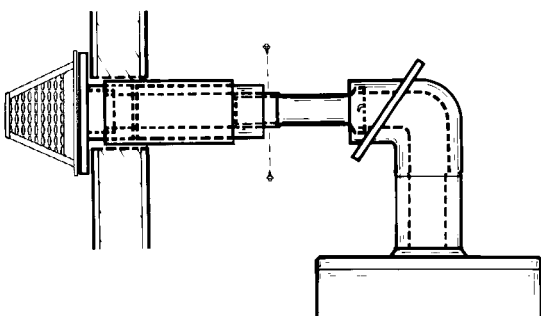
22. Now the 6" vent extension pipes can be expanded to connect at the vent elbow.



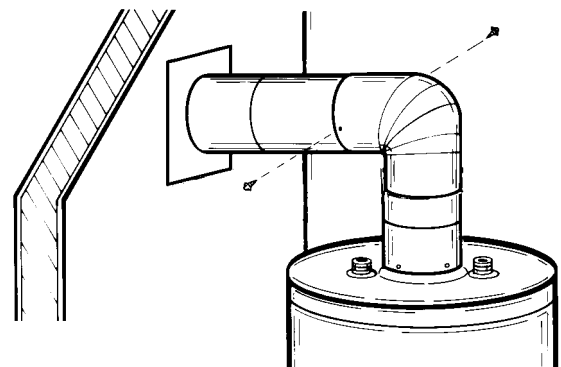
23. Pull the vent collar from the elbow to be against the wall and secure it using the screws provided.



21. Using a #22 drill bit, drill holes 180° apart at the connection point of the two 3" flue extensions. Then using 2 screws provided, lock these pipes together.

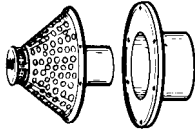


24. Lock the 6" vent extension to the vent elbow by using two screws provided, placing them 180° apart.



# Installing the New Water Heater (cont'd)

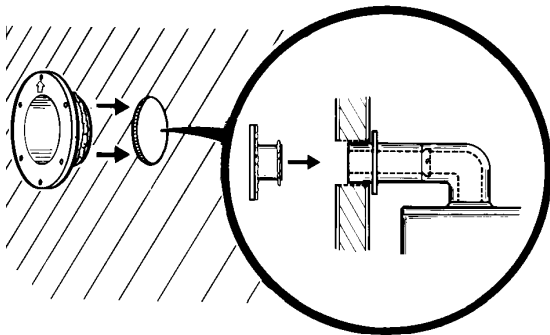
**NOTE:** These supplementary installation instructions are applicable only if this direct vent water heater is provided with the alternate brown porcelain-enameled vent cap assembly and the 6" vent wall assembly shown below:



The water heater model designation on the rating plate will have a suffix "P" to indicate this alternate vent cap assembly.

The alternate installation instructions below will replace the itemized instructions in the manual as follows: Items 11 thru 15 on pages 12 and 13; and Items 14 thru 18 on page 16.

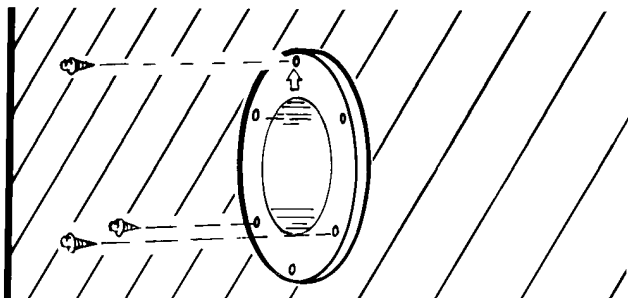
1. Making sure the arrow points "UP", install the vent collar assembly through the wall, connecting it to the extension and/or elbow (depending on which one was used).



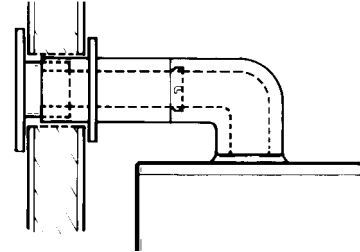
2. We have supplied 3 wood screws to attach the collar to the exterior wall of the building. However, other types of screws may have to be substituted depending on the material the exterior wall is constructed of.

**Note: Alternate screws used must not have heads larger than 3/8".**

The three screws must be placed at every other hole (120° apart) to secure the vent collar assembly to the outside wall.

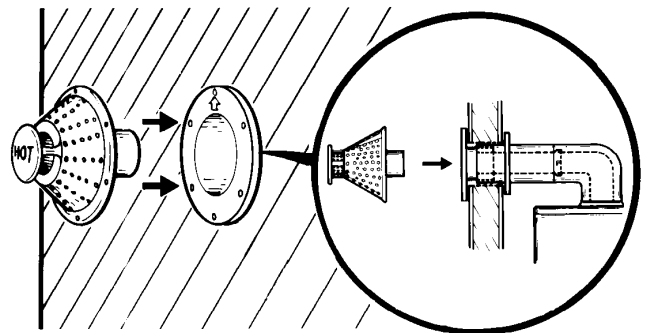


3. Insert the 3" diameter flue extension pipe into the vent collar assembly (flared & notched end first) and lock (turn clockwise to lock studs to slots) the flue extension pipe to the flue elbow.



4. Connect the vent cap by sliding its end over the 3" diameter extension pipe and O-ring.

**NOTE:** To facilitate ease of assembly of the vent cap to the 3" pipe, a soap solution can be applied to the O-ring gasket.

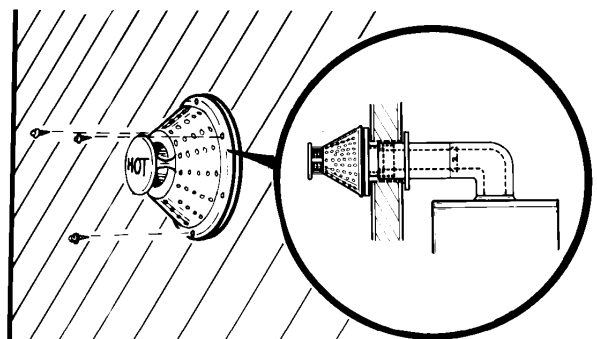


5. The vent cap has 6 holes around the outer edge. The three larger ones are to accommodate the 3 screws securing the vent collar assembly to the exterior wall. The three smaller ones will now be used to attach the vent cap assembly.

**NOTE:** Screws are supplied; however, substitution may be necessary depending on the exterior wall material.

## ▲ CAUTION

To prevent unlocking the previously installed 3" diameter extension, the vent cap assembly must be rotated in a clockwise motion when the vent cap is installed.

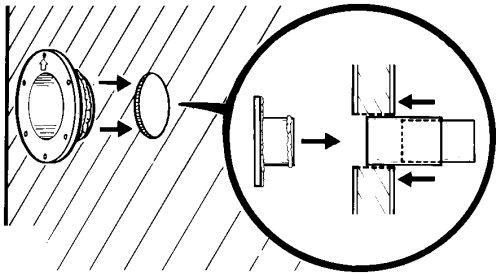




# Installing the New Water Heater (cont'd)

The alternate installation instructions below will replace the itemized instructions in the manual as follows: Items 12 thru 15 on pages 18 and 19; and Items 15 thru 18 on page 22.

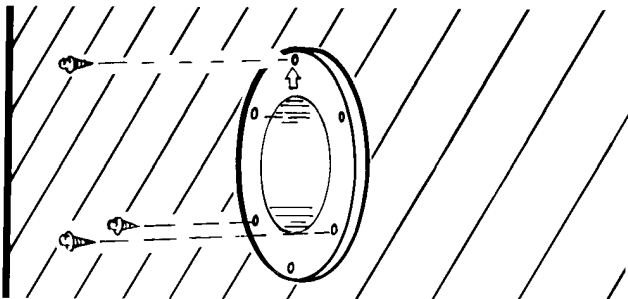
1. Making sure the arrow points "UP", install the vent collar assembly through the wall, connecting it to the 6" telescoping extension. Remember, the extension is not connected yet and it may be necessary to go back indoors and push it back up for a tight fit to the collar.



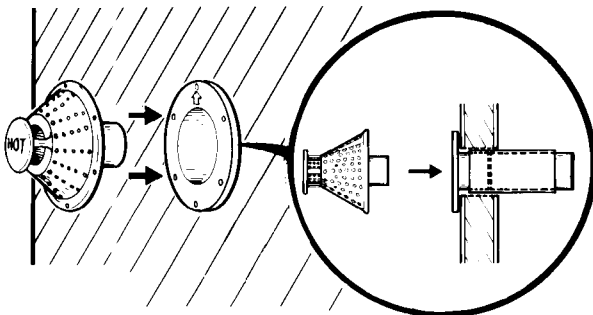
2. We have supplied 3 wood screws to attach the collar to the exterior wall of the building. However, other types of screws may have to be substituted depending on the construction of the exterior wall.

**NOTE: Alternate screws used must not have heads larger than 3/8".**

The three screws must be placed at every other hole (120° apart) to secure the vent collar assembly to the outside wall.

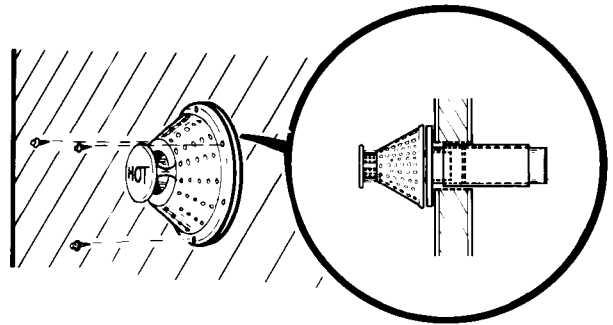


3. Place the vent cap in the vent collar assembly.



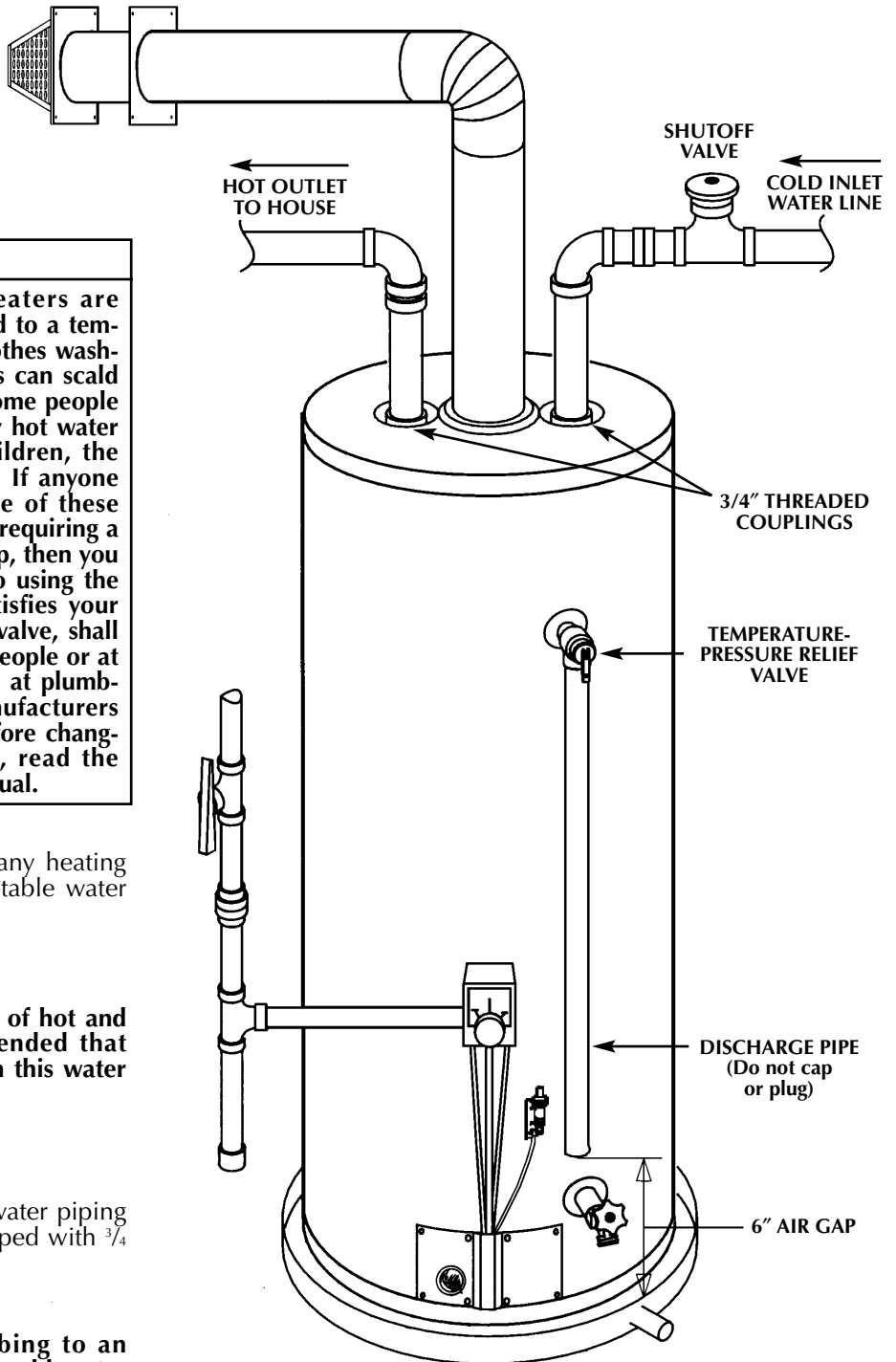
4. The vent cap has 6 holes around its outer edge. The three larger ones are to accommodate the 3 screws securing the vent collar assembly to the exterior wall. The three smaller ones will now be used to attach the vent cap assembly.

**NOTE: Again screws are supplied; however, substitution may be necessary, depending on the exterior wall material.**



# Installing the New Water Heater (cont'd)

## Water Piping



### ▲ WARNING

**HOTTER WATER CAN SCALD:** Water heaters are intended to produce hot water. Water heated to a temperature which will satisfy space heating, clothes washing, dish washing, and other sanitizing needs can scald and permanently injure you upon contact. Some people are more likely to be permanently injured by hot water than others. These include the elderly, children, the infirm, or physically/mentally handicapped. If anyone using hot water in your home fits into one of these groups or if there is a local code or state law requiring a certain temperature water at the hot water tap, then you must take special precautions. In addition to using the lowest possible temperature setting that satisfies your hot water needs, a means such as a mixing valve, shall be used at the hot water taps used by these people or at the water heater. Mixing valves are available at plumbing supply or hardware stores. Follow manufacturers instructions for installation of the valves. Before changing the factory setting on the thermostat, read the "Temperature Regulation" section in this manual.

This water heater shall not be connected to any heating systems or component(s) used with a non-potable water heating appliance.

**NOTE:** To protect against untimely corrosion of hot and cold water fittings, it is strongly recommended that dielectric unions or couplings be installed on this water heater when connected to copper pipe.

The illustration shows the attachment of the water piping to the water heater. The water heater is equipped with  $\frac{3}{4}$  inch water connections.

**NOTE:** If using copper tubing, solder tubing to an adapter before attaching the adapter to the cold water inlet connection. Do not solder the cold water supply line directly to the cold water inlet or it will harm the dip tube.

# Installing the New Water Heater (cont'd)

## Temperature-Pressure Relief Valve

### ▲ WARNING

For protection against excessive pressures and temperatures in this water heater, install temperature-pressure protective equipment required by local codes, but not less than a combination temperature-pressure relief valve certified by nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, the current edition ANSI Z21.22. This valve must be marked with a maximum set pressure not to exceed the marked hydrostatic working pressure of the water heater (150 lbs./sq. in.). The relief valve must be marked with a discharge capacity not less than the water heater Btu input rate as shown on the model rating plate.

Install the temperature-pressure relief valve directly into the fitting of the water heater. Position the valve downward and provide tubing so that any discharge will exit only within 6 inches above, or at any distance below the structural floor. Be certain that no contact is made with any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances. Excessive length, over 30 feet, or use of more than four elbows can cause restriction and reduce the discharge capacity of the valve.

No valve or other obstruction is to be placed between the relief valve and the tank. Do not connect tubing directly to discharge drain unless a 6" air gap is provided. To prevent bodily injury, hazard to life, or damage property, the relief valve must be allowed to discharge water in quantities should circumstances demand. If the discharge pipe is not connected to a drain or other suitable means, the water flow may cause property damage.

#### The Discharge Pipe:

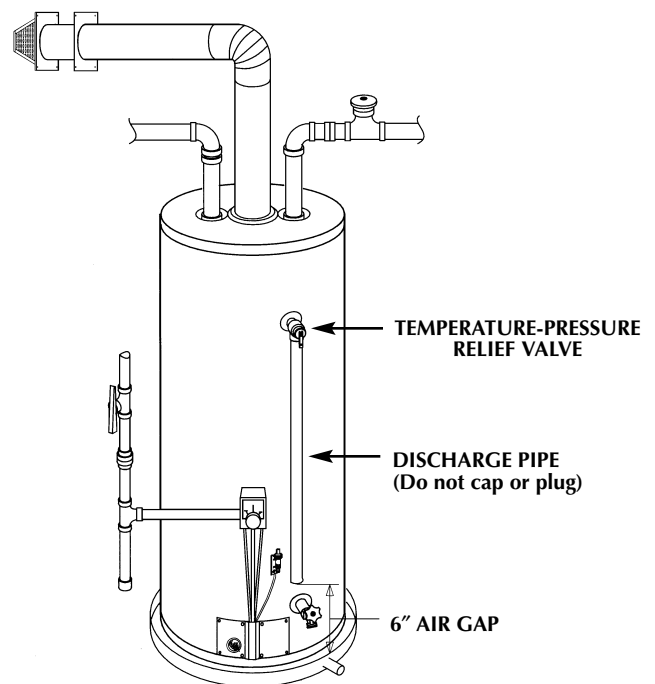
- Must not be smaller in size than the outlet pipe size of the valve, or have any reducing couplings or other restriction.
- Must not be plugged or blocked.
- Must be of material listed for hot water distribution.
- Must be installed so as to allow complete drainage of both the temperature-pressure relief valve, and the discharge pipe.
- Must terminate at an adequate drain.
- Must not have any valve between the relief valve and tank.

If the water heater is installed using a check valve in the water line or a water meter with a check valve, contact the local water supplier or plumbing contractor on how to control this situation

### ▲ WARNING

The temperature-pressure relief valve must be manually operated at least once a year. Caution should be taken to ensure that (1) no one is in front of or around the outlet of the temperature-pressure relief valve discharge line, and (2) the water manually discharged will not cause any bodily injury or property damage because the water may be extremely hot.

If after manually operating the valve, it fails to completely reset and continues to release water, immediately close the cold water inlet to the water heater, follow the draining instructions, and replace the temperature-pressure relief valve with a new one.



## Filling the Water Heater

### ▲ CAUTION

Never use this water heater unless it is completely filled with water. To prevent damage to the tank, the tank must be filled with water. Water must flow from the hot water faucet before turning "ON" gas to the water heater.

To fill the water heater with water:

1. Close the water heater drain valve by turning the handle to the right (clockwise). The drain valve is on the lower front of the water heater.
2. Open the cold water supply valve to the water heater.  
**NOTE: The cold water supply valve must be left open when the water heater is in use.**
3. To insure complete filling of the tank, allow air to exit by opening the nearest hot water faucet. Allow water to run until a constant flow is obtained. This will let air out of the water heater and the piping.
4. Check all new water piping for leaks. Repair as needed.

# Installing the New Water Heater (cont'd)

## Gas Piping

### ▲ WARNING

Make sure the gas supplied is the same type listed on the model rating plate. The inlet gas pressure must not exceed 10.5 in. water column (2.6kPa) for natural gas or 13 in. water column (3.2kPa) for propane (L.P.) gas. The minimum inlet gas pressure listed on the rating plate is for the purpose of input adjustment.

### ▲ WARNING

If the gas control valve is subjected to pressure exceeding  $\frac{1}{2}$  pound per square inch (3.5kPa), the damage to the gas control valve could result in a fire or explosion from leaking gas.

### ▲ WARNING

If the main gas line shutoff serving all gas appliances is used, also turn "OFF" the gas at each appliance. Leave all gas appliances turned "OFF" until the water heater installation is complete.

A gas line of sufficient size must be run to the water heater. Consult the current edition of National Fuel Gas Code ANSI Z223.1, also referred to as NFPA 54 and the gas company concerning pipe size.

There must be:

- A readily accessible manual shut off valve in the gas supply line serving the water heater, and
- A drip leg (sediment trap) ahead of the gas control valve to help prevent dirt and foreign materials from entering the gas control valve.
- A flexible gas connector or a ground joint union between the shutoff valve and control valve to permit servicing of the unit.

Be sure to check all the gas piping for leaks before lighting the water heater. Use a soapy water solution, not a match or open flame. Rinse off soapy solution and wipe dry.

When installed at elevations above 2,000 feet, input ratings should be reduced at the rate of 4 percent for each 1,000 feet above sea level. Installations above 4,000 ft. require replacement of the burner orifice in accordance with the National Fuel Gas Code ANSI Z223.1 / NFPA 54.

### ▲ WARNING

Failure to replace the orifice could result in improper and inefficient operation of the appliance, producing carbon monoxide gas in excess of safe limits, which could result in serious injury or death. Contact your gas supplier for any specific changes which may be required in your area.

### ▲ WARNING

Use pipe joint compound or teflon tape marked as being resistant to the action of petroleum [Propane (L.P.)] gases.

### ▲ WARNING

The appliance and its gas connection must be leak tested before placing the appliance in operation.

### ▲ WARNING

The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of  $\frac{1}{2}$  pound per square inch (3.5kPa).

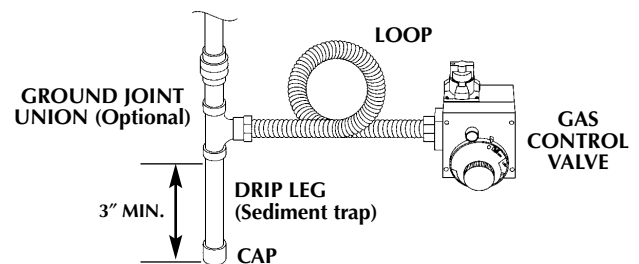
The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than  $\frac{1}{2}$  pound per square inch (3.5kPa).

Connecting the gas piping to the gas control valve of the water heater can be accomplished by either of the two methods shown.

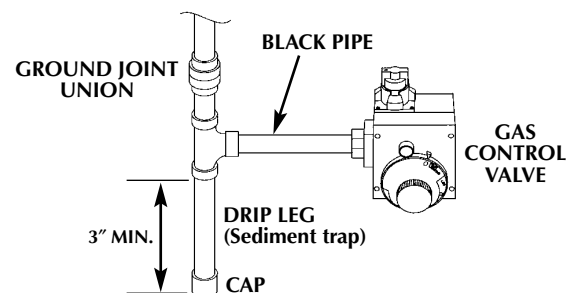
### SEDIMENT TRAP

A sediment trap shall be installed as close to the inlet of the water heater as practical at the time or water heater installation. The sediment trap shall be either a tee fitting with a capped nipple in the bottom outlet or other device recognized as an effective sediment trap. If a tee fitting is used, it shall be installed in conformance with one of the methods of installation shown below.

### GAS PIPING WITH FLEXIBLE CONNECTOR



### GAS PIPING WITH ALL BLACK IRON PIPE TO GAS CONTROL



### ▲ WARNING

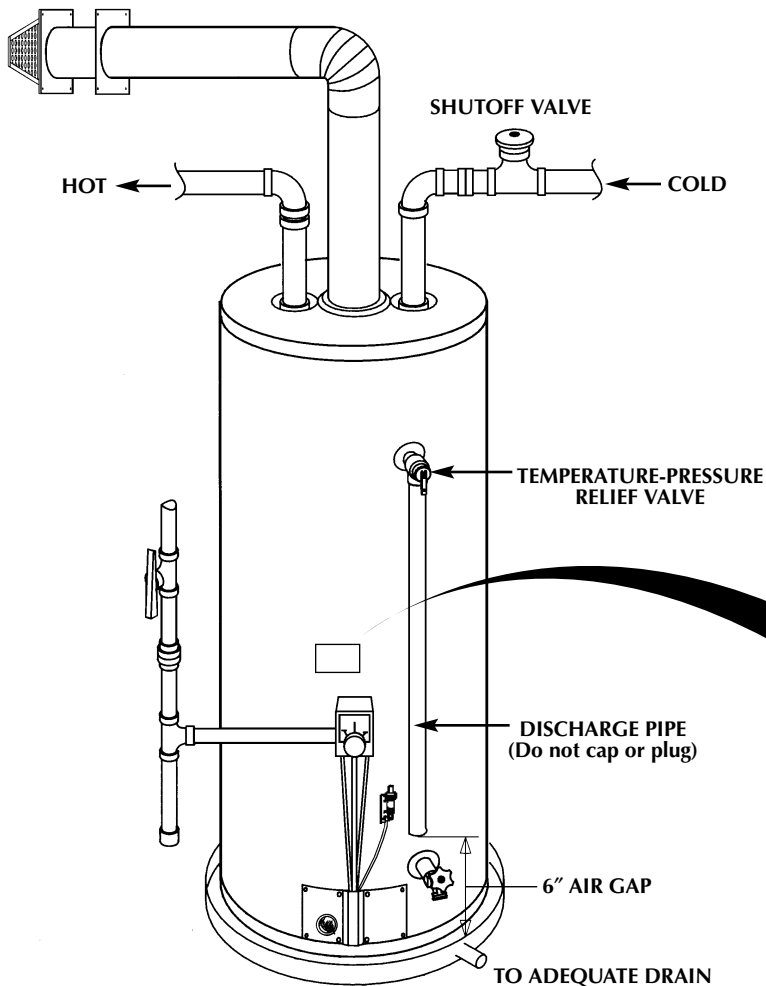
Contaminants in the gas lines may cause improper operation of the gas control valve that may result in fire or explosion. Before attaching the gas line be sure that all gas pipe is clean on the inside. To trap any dirt or foreign material in the gas supply line, a drip leg (sometimes called a sediment trap) must be incorporated in the piping. The drip leg must be readily accessible. Install in accordance with the "Gas Piping" section. Refer to the current edition of the National Fuel Gas Code, ANSI Z223.1, also referred to as NFPA 54.

# Installing the New Water Heater (cont'd)


## Installation Checklist

### BEFORE LIGHTING THE PILOT:

1. Check the gas line for leaks.
  - a. Use a soapy water solution. DO NOT test for gas leaks using a match or open flame.
  - b. Brush the soapy water solution on all gas pipes, joints and fittings.
  - c. Check for bubbling soap. This means you have a leak. Turn "OFF" gas and make the necessary repairs.
  - d. Recheck for leaks.
  - e. Rinse off soapy solution and wipe dry.
2. Is the new temperature-pressure relief valve properly installed and piped to an adequate drain? See "Temperature-Pressure Relief Valve" section.
3. Are the cold and hot water lines connected to the water heater correctly? See "Water Piping" instructions in the "Installing the New Water Heater" section.
4. Is the water heater completely filled with water? See "Filling the Water Heater" instructions in the "Installing the New Water Heater" section.
5. Will a water leak damage anything? See the "Locating the New Water Heater" section.
6. Is there proper clearance between the water heater and anything that might catch fire? See the "Locating the New Water Heater" section.
7. Do you have adequate ventilation so that the water heater will operate properly? See "Combustion Air and Ventilation" in the "Locating the New Water Heater" section.
8. Is the vent piping properly secured? See "Venting" instructions in the "Installing the New Water Heater" section.
9. Is there proper clearance between the vent pipe and anything that might catch fire? See "Venting" instructions in the "Installing the New Water Heater" section.
10. Is the vent pipe properly sloped and does the vent terminate outdoors? See "Venting" instructions in the "Installing the New Water Heater" section.
11. Do you need to call your gas company to check the gas pipe and its hookup?



### MODEL RATING PLATE

SUITABLE FOR WATER (POTABLE) HEATING AND SPACE HEATING				
MODEL NUMBER		CAPACITY		
				U.S. GAL.
EQUIPPED FOR	INPUT	RECOVERY	SERIAL NUMBER	
GAS	BTU/HR	GAL./HR.		
MAXIMUM HYDROSTATIC WORKING PRESSURE	MAX. INLET	GAS PRESSURE IN W.C.		MANIFOLD
150		MIN. INLET PRESSURE		
P.S.I.		W.C.	W.C.	W.C.
AUTOMATIC STORAGE WATER HEATER FOR DIRECT VENT INSTALLATION				

# Lighting

## ▲ WARNING

**BEFORE LIGHTING [PROPANE (L.P.) GAS WATER HEATERS]:** Propane (L.P.) gas is heavier than air. Should there be a leak in the system, the gas will settle near the ground. Basements, crawl spaces, skirted areas under manufactured (mobile) homes (even when ventilated), closets and areas below ground level will serve as pockets for the accumulation of this gas. Before attempting to light or relight the water heater's pilot or turning a nearby electrical light switch, be absolutely sure there is no accumulated gas in the area. Search for odor of gas by sniffing at ground level in the vicinity of the appliance. If odor is detected, follow the steps indicated at "For Your Safety" on the cover page of this manual, then leave the premises.

Lighting and operating instructions are located on front of the water heater, above or to one side of the gas control valve.

## ▲ WARNING

**AN ODORANT IS ADDED TO THE GAS USED BY THIS WATER HEATER.**

**FOR YOUR SAFETY  
IF YOU SMELL GAS:**

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

## ▲ WARNING

**DO NOT** force the gas control knob. Use only your hand to push it down to light the pilot, or to turn it to "ON", "OFF" or "PILOT". Never use a tool such as a lever, wrench or pliers. Do not hit or damage the knob. A damaged knob may result in an explosion and serious injury. If you have problem turning the knob, call the gas supplier immediately.

## CHECK FOR LEAKS

Be sure to check all your gas pipes for leaks before lighting your water heater. Use a soapy water solution, not a match or open flame. Check the factory gas fittings after pilot is lit and gas control knob is still in "PILOT" position. Then, check the fittings when the main burner is turned "ON". Use a soapy water solution for this, too.

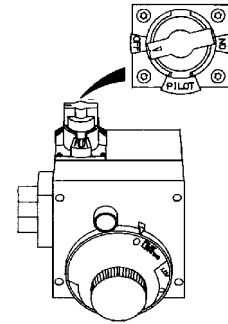


Figure 10

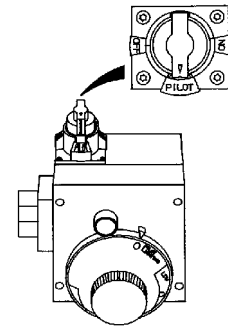


Figure 11

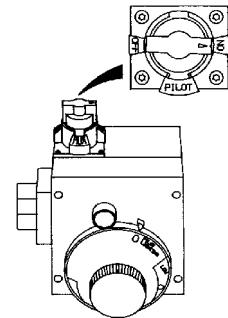


Figure 12

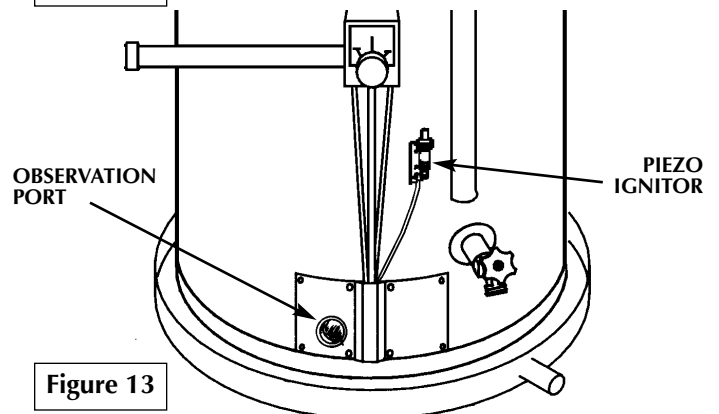


Figure 13

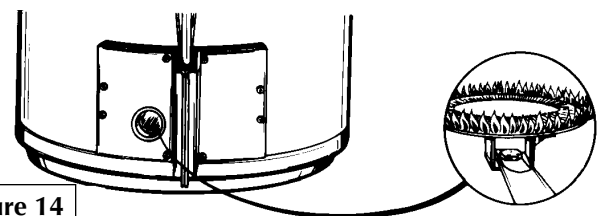


Figure 14

# Lighting (cont'd)


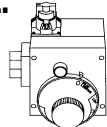


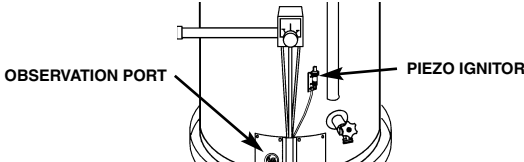


## FOR YOUR SAFETY READ BEFORE LIGHTING

### WARNING

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.
- B. **BEFORE LIGHTING** smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.  
**WHAT TO DO IF YOU SMELL GAS**
  - Do not try to light any appliance.
  - Do not touch any electric switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.
- C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.


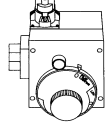

## LIGHTING INSTRUCTIONS

1. **STOP!** Read the safety information above on this label.
2. Set the thermostat to lowest setting by turning the water temperature dial clockwise, (  ) to its lowest temperature setting (with arrow on dial) as shown. **DO NOT FORCE.**  

3. Turn gas control knob clockwise  to "OFF" position. Knob cannot be turned from "PILOT" to "OFF" unless knob is depressed slightly. **DO NOT FORCE.** (Figure 10)
4. Wait five (5) minutes to clear out any gas. If you then smell gas, **STOP!** Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.
5. If you don't smell gas, turn knob on gas control counter clockwise  to "PILOT" position. (Figure 11)
6. Pilot can be viewed through observation port. Note location of piezo ignitor. (Figure 13)  

7. Depress the gas control knob all the way down. Immediately depress the piezo ignitor button until a click is heard and then release. Check to see if pilot is lit through the observation port. If pilot is not lit, continue to depress and release piezo ignitor button up to six (6) times. If pilot is still not lit, repeat steps 3 through 7. After the pilot is lit, continue to hold control knob down for about one (1) minute. Release knob and it will pop back up. Pilot should remain lit. If it goes out repeat steps 2 through 7.
  - If knob does not pop up when released, stop and immediately call your service technician or gas supplier.
  - If the pilot will not stay lit after several tries, depress and turn the gas control knob clockwise  to "OFF" and call your service technician or gas supplier. (Figure 10)
8. At arms length away, turn gas control knob counter-clockwise  to the full "ON" position. **WARNING: Do not use gas control knob to regulate gas flow.** (Figure 12)
9. At arms length away, set the thermostat to desired setting. The mark (▲) indicative of approximate 120°F is preferred starting point. Some local laws may require a lower starting point. If hotter water is desired, see instruction manual and "warning" below.

### WARNING

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

## TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting by turning the water temperature dial clockwise (  ) to its lowest temperature setting (with arrow on dial) as shown. **DO NOT FORCE.**  

2. Turn gas control knob clockwise  to "OFF" position. Knob cannot be turned from "PILOT" to "OFF" unless knob is depressed slightly. **DO NOT FORCE.** (Figure 10)

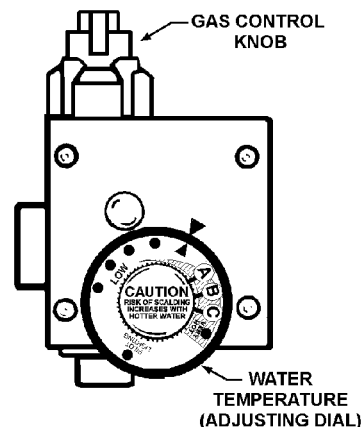
# Temperature Regulation

Due to the nature of the typical gas water heater, the water temperature in certain situations may vary up to 30°F higher or lower at the point of use such as, bathtubs, showers, sink, etc.

This means that when the temperature adjustment dial is set at the mark approximating 120°F, the actual water temperature at any hot water tap could be as high as 150°F or as low as 90°F.

Any water heater's intended purpose is to heat water. Hot water is needed for cleansing, cleaning, and sanitizing (bodies, dishes, clothing). Hot water will present a scald hazard. Depending on the time element, and the people involved (normal adults, children, toddlers, elderly, infirm, etc.) scalding may occur at different temperatures.

Turn the water temperature dial clockwise (↻) to decrease the temperature, or counterclockwise (↺) to increase the temperature.



PILOT LIGHTING – Set here before attempting to light pilot.

**▲ WARNING**

**HOTTER WATER CAN SCALD:** Water heaters are intended to produce hot water. Water heated to a temperature which will satisfy clothes washing, dish washing, and other sanitizing needs can scald and permanently injure you upon contact. Some people are more likely to be permanently injured by hot water than others. These include the elderly, children, the infirm, or physically/mentally handicapped. If anyone using hot water in your home fits into one of these groups or if there is a local code or state law requiring a certain temperature water at the hot water tap, then you must take special precautions. In addition to using the lowest possible temperature setting that satisfies your hot water needs, a means such as a mixing valve, should be used at the hot water taps used by these people or at the water heater.

**▲ WARNING**

Never allow small children to use a hot water tap, or to draw their own bath water. Never leave a child or handicapped person unattended in a bathtub or shower.

The thermostat of this water heater has been factory set at its lowest position, to reduce the risk of scald injury. It is adjustable and must be reset to the desired temperature setting. The mark ( ▲ ) indicative of approximately 120°F is preferred starting point. Some states have a requirement for a lower setting. If you need hotter water, follow directions for temperature adjustment, but beware of the warnings in this section.

<u>Temperature Setting</u>	<u>Time to Produce 2nd &amp; 3rd Degree Burns on Adult Skin</u>
VERY HOT= approx. 160°F	About 1/2 second
C= approx. 150°F	About 1-1/2 seconds
B= approx. 140°F	Less than 5 seconds
A= approx. 130°F	About 30 seconds
▲= approx. 120°F	More than 5 minutes
LOW= approx. 80°F	-----

**NOTE:** Water temperature range of 120°-140°F (49°-60°C) recommended by most dishwasher manufacturers.

**▲ WARNING**

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



# For Your Information

## Start Up Conditions

### CONDENSATION

Whenever the water heater is filled with cold water, a certain amount of condensation will form while the burner is on. A water heater may appear to be leaking when in fact the water is condensation. This usually happens when:

- a. When a new water heater is filled with cold water for the first time.
- b. When gas burns and water vapor is produced in water heaters, particularly high efficiency models where flue temperatures are lower.
- c. When you use large amounts of hot water in a short time and the refill water is very cold.

Moisture from the products of combustion condense on the cooler tank surfaces and form drops of water which may fall onto the burner or other hot surfaces to produce a "sizzling" or "frying" noise.

Excessive condensation can cause pilot outage due to water running down the flue tube onto the main burner and putting out the pilot.

Because of the suddenness and amount of water, condensation water may be diagnosed as a "tank leak". After the water in the tank warms up (about 1-2 hours), the condition should disappear.

Do not assume the water heater is leaking until there has been enough time for the water in the tank to warm up.

An undersized water heater will cause more condensation. The water heater must be sized properly to meet the family's demands for hot water including dishwashers, washing machines and shower heads.

Excessive condensation may be noticed during the winter and early spring months when incoming water temperatures are at their lowest.

Good venting is essential for a gas fired water heater to operate properly as well as to carry away products of combustion and water vapor.

### SMOKE/ODOR

It is not uncommon to experience a small amount of smoke and odor during the initial start-up. This is due to burning off of oil from metal parts, and will disappear in a short while.

### THERMAL EXPANSION

Water supply systems may, because of such events as high line pressure, frequent cut-offs, the effects of water hammer among others, have installed devices such as pressure reducing valves, check valves, back flow preventers, etc...to control these types of problems. When these devices are not equipped with an internal by-pass, and no other measures are taken, the devices cause the water system to be closed. As water is heated, it expands (thermal expansion) and closed systems do not allow for the expansion of heated water.

The water within the water heater tank expands as it is

heated and increases the pressure of the water system. If the relieving point of the water heater's temperature-pressure relief valve is reached, the valve will relieve the excess pressure. **The temperature-pressure relief valve is not intended for the constant relief of thermal expansion.** This is an unacceptable condition and must be corrected.

It is recommended that any devices installed which could create a closed system have a by-pass and/or the system have an expansion tank to relieve the pressure built by thermal expansion in the water system. Expansion tanks are available for ordering through a local plumbing contractor. Contact the local water supplier and/or plumbing contractor for assistance in controlling these situations.

### STRANGE SOUNDS

Possible noises due to expansion and contraction of some metal parts during periods of heat-up and cool-down do not represent harmful or dangerous conditions.

Condensation causes sizzling and popping with the burner area during heating and cooling periods and should be considered normal. See "Condensation" in this section.

## Operational Conditions

### SMELLY WATER

In each water heater there is installed at least one anode rod (see parts section) for corrosion protection of the tank. Certain water conditions will cause a reaction between this rod and the water. The most common complaint associated with the anode rod is one of a "rotten egg smell". This odor is derived from hydrogen sulfide gas dissolved in the water. The smell is the result of four factors which must all be present for the odor to develop:

- a. a concentration of sulfate in the supply water.
- b. little or no dissolved oxygen in the water.
- c. a sulfate reducing bacteria within the water heater. (This harmless bacteria is non-toxic to humans.)
- d. an excess of active hydrogen in the tank. This is caused by the corrosion protective action of the anode.

Smelly water may be eliminated or reduced in some water heater models by replacing the anode(s) with one of less active material, and then chlorinating the water heater tank and all hot water lines. Contact the local water heater supplier for further information concerning an Anode Replacement Kit #9000029 and this Chlorination Treatment.

If the smelly water persists after the anode replacement and chlorination treatment, we can only suggest that continuous chlorination and filtering conditioning equipment be considered to eliminate the water problem.

**Do not remove the anode leaving the tank unprotected. By doing so, all warranty on the water heater tank is voided.**

# For Your Information (cont'd)

## Operational Conditions

### "AIR" IN HOT WATER FAUCETS

#### ▲ WARNING

**HYDROGEN GAS:** Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally two weeks or more). Hydrogen gas is extremely flammable and explosive. To prevent the possibility of injury under these conditions, we recommend the hot water faucet be opened for several minutes at the kitchen sink before any electrical appliances which are connected to the hot water system are used (such as a dishwasher or washing machine). If hydrogen gas is present, there will probably be an unusual sound similar to air escaping through the pipe as the hot water faucet is opened. There must be no smoking or open flame near the faucet at the time it is open.

### HIGH TEMPERATURE SHUT OFF SYSTEM

This water heater is equipped with an automatic gas shut off system. This system works when high water temperatures are present. Turn "OFF" the entire gas supply to the water heater. The high temperature shut off is built into the gas control valve. It is non-resettable. If the high temperature shut off activates, the gas control valve must be replaced. Contact the local gas utility.

#### ▲ WARNING

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

### NOT ENOUGH OR NO HOT WATER

1. Check the manual gas shut off valve to be sure it is open.

2. Check the pilot flame. It may have gone out. All models have an opening in the outer door for viewing the pilot.
3. If the pilot is not lit, follow the "Lighting" instructions in this manual or located above the gas control valve on the water heater to relight the pilot. If the water was extremely hot and is now cold, the high limit safety temperature shut off may have put out the burner and pilot. The gas control valve must be changed.
4. The gas control knob must be turned to the "ON" position.
5. The temperature adjustment dial may be set too low. See the "Temperature Regulation" section.
6. The gas company can check the gas input to see if it is correct. An underfired water heater will not heat water as quickly.
7. Look for leaking or open hot water faucets. Make sure all are closed.
8. The cold water inlet temperature may be colder during the winter months. It will take longer to heat the water and seem like less hot water.
9. If you cannot find what is wrong, call the local gas utility and/or plumbing contractor.

### WATER IS TOO HOT

1. The temperature adjustment dial may be set too high. See the "Temperature Regulation" section.

**NOTE:** A period of time is necessary after an adjustment has been made for the water temperature to reach the new temperature setting.

2. If lower temperature settings will not lower the water temperature, call the local gas utility.

# Periodic Maintenance

## Venting System Inspection

At least once a year a visual inspection should be made of the venting system. You should look for:

1. Obstructions which could cause improper venting. The combustion and ventilation air flow must not be obstructed.
2. Damage or deterioration which could cause improper venting or leakage of combustion products.
3. Rusted flakes around top of water heater.

#### ▲ WARNING

Be sure the vent piping is properly connected to prevent escape of dangerous flue gasses which could cause deadly asphyxiation.

#### ▲ WARNING

Obstructions and deteriorated vent systems may present serious health risk or asphyxiation.

# Periodic Maintenance (cont'd)

## ▲ WARNING

Chemical vapor corrosion of the flue and vent system may occur if air for combustion contains certain chemical vapors. Spray can propellants, cleaning solvents, refrigerator and air conditioner refrigerants, swimming pool chemicals, calcium and sodium chloride, waxes, bleach and process chemicals are typical compounds which are potentially corrosive.

## ▲ WARNING

If after inspection of the vent system you found sooting or deterioration, something is wrong. Call the local gas utility to correct the problem and clean or replace the flue and venting before resuming operation of the water heater.

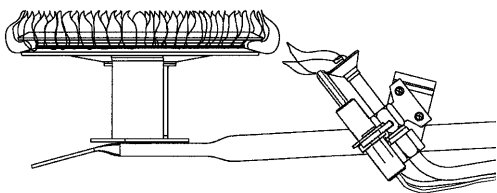
## Burner Inspection

## ▲ WARNING

Flood damage to a water heater may not be readily visible or immediately detectable. However, over a period of time a flooded water heater will create dangerous conditions which can cause DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE. Contact a qualified service technician or contractor to replace a flooded water heater. Do not attempt to repair the unit! It must be replaced!

At least once a year a visual inspection should be made of the main burner and pilot burner. The drawing is for your reference.

You should check for sooting which is not normal and will impair proper combustion.



## ▲ WARNING

Soot build-up indicates a problem that requires correction before further use. Turn "OFF" gas to water heater and leave "OFF" until repairs are made, because failure to correct the cause of the sooting can result in a fire causing DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE.

## Burner Cleaning

In the event your burner needs cleaning, use the following instructions:

If inspection of the burner shows that cleaning is required, turn the gas control knob clockwise (↻) to the "OFF" position, depressing slightly.

**NOTE:** The knob cannot be turned from "PILOT" to "OFF" unless knob is depressed slightly. DO NOT FORCE.

Loose deposits on or around the burner can be removed by carefully using the hose of a vacuum cleaner inserted through the access door of the water heater. If the burner needs to be removed for additional cleaning, call the local gas utility to remove and clean the burner and correct the problem that required the burner to be cleaned.

## L.P. Gas Control Valve & Burner Assembly Replacement Information

## ▲ WARNING

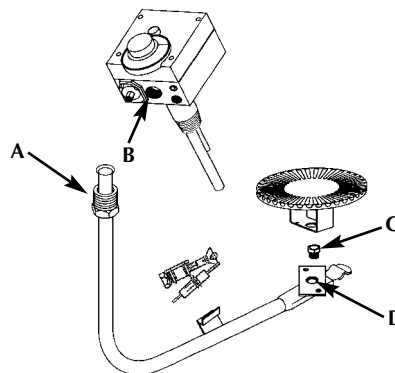
PROPANE (L.P.) GAS CONTROL VALVE AND BURNER ASSEMBLY REPLACEMENT INFORMATION.

For Propane (L.P.) Gas Models Only:

Your water heater is equipped with a Propane (L.P.) gas control valve and a main burner assembly with left hand threads for the following fittings and their connections.

- (1) The connection between the manifold and the gas control valve (A to B) are left hand threads.
- (2) The connection between the main burner orifice and the manifold (C to D) are left hand threads.

For ordering these replacement parts, please refer to the "Repair Parts" section of this manual.



## Housekeeping

Vacuum around base of water heater for dust, dirt, and lint on a regular basis.

## ▲ WARNING

**INSTALLED IN SUITABLE AREA:** To insure sufficient ventilation and combustion air supply, proper clearances from the water heater must be maintained. See "Locating the New Water Heater" section. Combustible materials such as clothing, cleaning materials, or flammable liquids, etc. must not be placed against or adjacent to the water heater which can cause a fire.

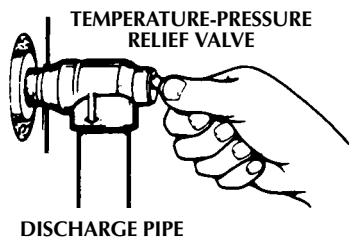
# Periodic Maintenance (cont'd)

## Anode Rod Inspection

The rod must be maintained to keep the tank in operating condition. Anode deterioration depends on water conductivity, not necessarily water condition. It may be necessary to have the anode rod inspected a few times during the first year to see what effect the water has had. A corroded or pitted anode rod, in the first year, indicates high water conductivity and should be checked and or replaced more often than an anode rod that appears to be fairly clean. Inspection should be conducted by a qualified technician.

## Temperature-Pressure Relief Valve Operation

The temperature-pressure relief valve must be manually operated at least once a year.



### ▲ WARNING

When checking the temperature-pressure relief valve operation, make sure that (1) no one is in front of or around the outlet of the temperature-pressure relief valve discharge line, and (2) that the water manually discharged will not cause any property damage because the water may be extremely hot.

If after manually operating the valve, it fails to completely reset and continues to release water, immediately close the cold water inlet to the water heater, follow the draining instructions, and replace the temperature-pressure relief valve with a new one.

Failure to install and maintain a new properly listed temperature-pressure relief valve will release the manufacturer from any claim which might result from excessive temperature or pressure.

### ▲ WARNING

If the temperature-pressure relief valve on the appliance weeps or discharges periodically, this may be due to thermal expansion. Your water heater may have a check valve installed in the water line or a water meter with a check valve. Consult the water supplier and/or plumbing contractor for further information. Do not plug the temperature-pressure relief valve.

## Draining

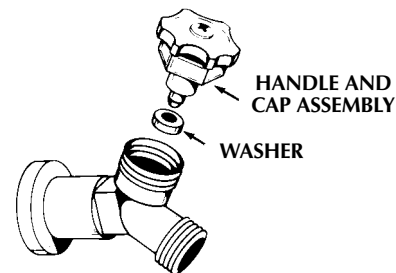
The water heater should be drained if being shut down during freezing temperatures. Also periodic draining and cleaning of sediment from the tank may be necessary.

1. Turn the gas control knob to the "OFF" position.
2. CLOSE the cold water inlet valve to the water heater.
3. OPEN a nearby hot water faucet and leave open to allow for draining.
4. Connect a hose to the drain valve and terminate to an adequate drain.
5. OPEN the water heater drain valve to allow for tank draining.  
**NOTE: If the water heater is going to be shut down and drained for an extended period, the drain valve should be left open with hose connected allowing water to terminate to an adequate drain.**
6. Close the drain valve.
7. Follow "Filling The Water Heater" instructions in the "Installing the New Water Heater" section.
8. Follow the lighting instructions in the "Lighting" section to restart the water heater.

## Drain Valve Washer Replacement

**NOTE: For replacement, use a  $\frac{1}{32}$ " x  $\frac{1}{64}$ " x  $\frac{1}{8}$ " thick washer available at your nearest hardware store.**

1. Turn "OFF" gas supply to water heater.
2. Follow "Draining" instructions.
3. Turning counter clockwise, remove the hex cap below the screw handle.
4. Remove the washer and put the new one in place.
5. Screw the handle and cap assembly back into the drain valve and retighten using a wrench. DO NOT OVER TIGHTEN.
6. Follow "Filling The Water Heater" instructions in the "Installing the New Water Heater" section.
7. Check for leaks.
8. Follow the lighting instructions in the "Lighting" section to restart the water heater.



## Service

If a condition persists or you are uncertain about the operation of the water heater, let a qualified person check it out. Call the local utility and/or plumbing contractor.

# Leakage Checkpoints

Use this guide to check a “Leaking” water heater. Many suspected “Leakers” are not leaking tanks. Often the source of the water can be found and corrected.

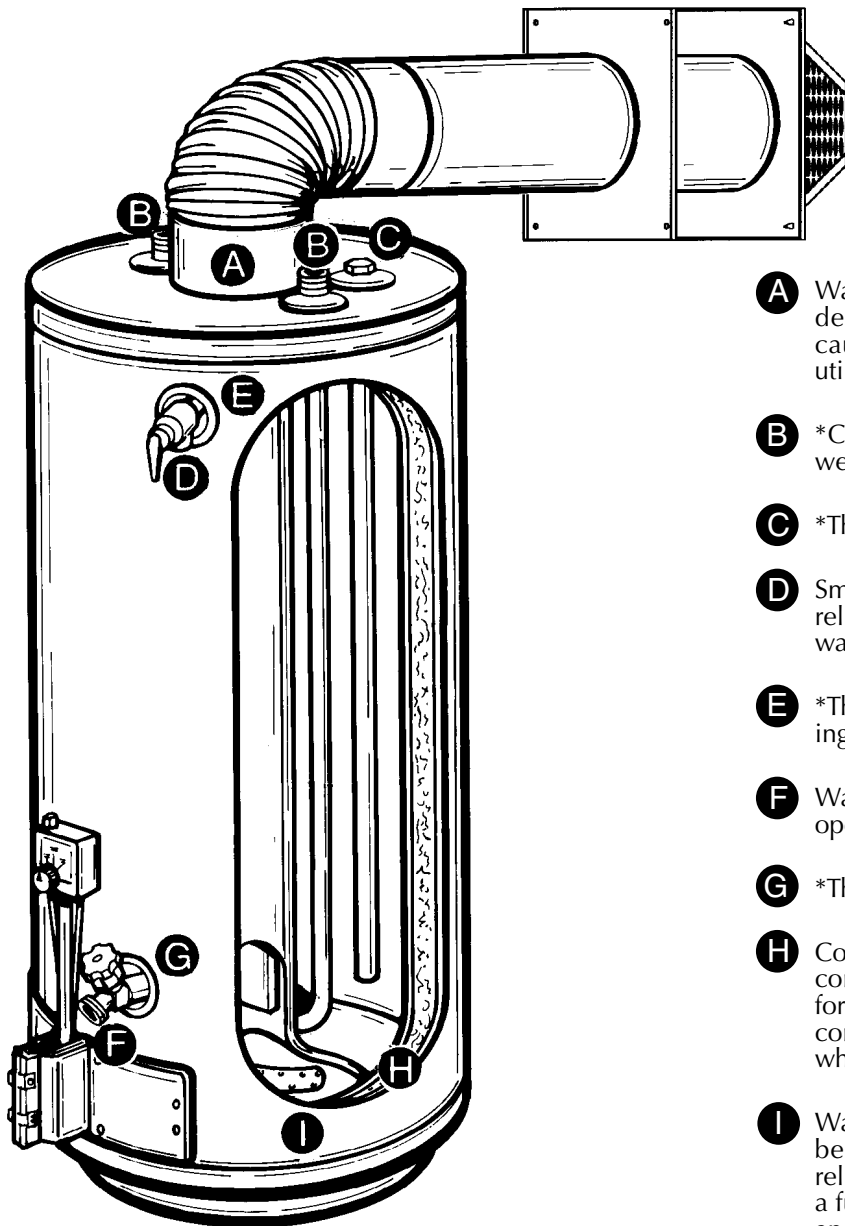
If you are not thoroughly familiar with gas codes your water heater, and safety practices, contact the gas utility to check the water heater.

## ▲ CAUTION

Read this manual first. Then before checking the water heater make sure the gas supply has been turned “OFF”, and never turn the gas “ON” before the tank is completely full of water.

## ▲ CAUTION

Never use this water heater unless it is completely filled with water. To prevent damage to the tank, the tank must be filled with water. Water must flow from the hot water faucet before turning “ON” gas to the water heater.



- A** Water at the vent pipe is water vapor which has condensed out of the combustion products. This is caused by a problem in the vent. Contact the gas utility.
- B** \*Condensation may be seen on pipes in humid weather or pipe connections may be leaking.
- C** \*The primary anode rod fitting may be leaking.
- D** Small amounts of water from temperature-pressure relief valve may be due to thermal expansion or high water pressure in your area.
- E** \*The temperature-pressure relief valve may be leaking at the tank fitting.
- F** Water from a drain valve may be due to the valve opened slightly.
- G** \*The drain valve may be leaking at the tank fitting.
- H** Combustion products contain water vapor which can condense on the cooler surfaces of the tank. Droplets form and drip into the fire or run on the floor. This is common at the time of startup after installation and when incoming water is cold.
- I** Water in the water heater bottom or on the floor may be from condensation, loose connections, or the relief valve. DO NOT replace the water heater until a full inspection of all possible water sources is made and necessary corrective steps taken.

Leakage from other appliances, water lines, or ground seepage should also be checked.

\* To check where threaded portion enters tank, insert cotton swab between jacket opening and fitting. If cotton is wet, follow “Draining” instructions in the “Periodic Maintenance” section and then remove fitting. Put pipe dope or teflon tape on the threads and replace. Then follow “Filling the Water Heater” instructions in the “Installing the New Water Heater Section” section.



# Repair Parts (cont'd)

KEY #	PARTS DESCRIPTION	GAL. CAP.	40	50	40	50	75
		BTU's in 1000's NAT/L.P.	36/36	38/38	40/40	48/44	55 NAT.
1.	Access Door Clips (Pkg. 2)		9000694	9000694	9000694	9000694	9000694
2.	Right Access Door w/Gasket		9000695	9000695	9000695	9000695	9000695
3.	Left Access Door w/Gasket		9000696	9000696	9000696	9000696	9000696
4.	Burner Orifice (Nat.) (Drill Size)		0230141 #36	0230186 #35	0230120 #33	0230125 1/8	0230124 #30
4.	Burner Orifice (Nat.) Hi-Altitude (Drill Size)		0230138 #39	0230130 #37	0230141 #36	0230120 #33	0230160 #31
4.	Burner Orifice (L.P.) LHT (Drill Size)		0230224 #51	0230224 #51	0230225 #50	0230223 #49	—
4.	Burner Orifice (L.P.) Hi-Altitude/LHT (Drill Size)		0230222 #52	0230222 #52	0230224 #51	0230225 #50	—
5.	Thermocouple		9000876	9000876	9000876	9000876	9002002
6.	Gas Control Valve (Nat.)		9000249	9000249	9000249	9000249	9000249
6.	Gas Control Valve Propane (L.P.)		9002123	9002123	9002123	9002123	9002123
7.	Gas Manifold (Nat.)		9002413	9002413	9002413	9002413	9003046
7.	Gas Manifold (L.P.)		9002415	9002415	9002415	9002415	—
8.	Pilot Tubing w/Fittings		9000278	9000278	9000278	9000278	9000278
9.	Burner (Nat.)		9002411	9002411	9002411	9002411	9003040
9.	Burner Propane (L.P.)		9002411	9002411	9002411	9000349	—
10.	Inner Door		9000281	9000281	9000281	9000281	9000281
11.	Pilot (Nat.) w/electrode		9003320	9003320	9003320	9003320	9003320
11.	Pilot Propane (L.P.) w/electrode		9003319	9003319	9003319	9003319	—
12.	Drain Valve		9000058	9000058	9000058	9000058	9001588
13.	Jacket Clips (Pkg. 8)		9001305	9001305	9001305	9001305	9001305
14.	Secondary Anode w/Nipple*		9000705	9000705	9000705	9000705	9000705
15.	Temperature-Pressure Relief Valve		9000728	9000728	9000728	9000728	9000728
16.	Anode Rod		9000707	9000279	9000707	9000279	9000734
17.	Nipple		9000399	9000399	9000399	9000399	9002298
18.	Flue Baffle (Nat.)		9000709	9002836	9002837	9001288	9002297
18.	Flue Baffle (L.P.)		9000709	9000806	9001287	9001288	—
19.	Flue Adaptor		—	—	9001289	9001290	9001290
20.	Adaptor Gasket		—	—	9001291	9001292	9001292
21.	Adaptor Plate w/Gasket		—	—	9001293	9001294	9001294
	Standard Kit No. 9000687						
22.	O-Ring Gasket		9000710	9000710	9000710	9000710	9000710
23.	3" I.D. x 9 1/2" Flue Extension Pipe with Gaskets		9000711	9000711	9000711	9000711	9000711
24.	Rope Gasket		9000712	9000712	9000712	9000712	9000712
25.	6" I.D. x 5 1/2" Vent Extension Pipe		9000713	9000713	9000713	9000713	9000713
	Kit AVK-1 No. 9001246						
26.	3" I.D. x 7 7/8" Flue Extension Pipe with Gaskets		9001280	9001280	9001280	9001280	9001280
27.	6" I.D. x 8 1/8" Vent Pipe		9001277	9001277	9001277	9001277	9001277
28.	6" O.D. x 8 1/8" Vent Extension Pipe		9001274	9001274	9001274	9001274	9001274
29.	3" O.D. x 8 3/8" Flue Pipe		9001283	9001283	9001283	9001283	9001283
30.	Rope Gasket		9000712	9000712	9000712	9000712	9000712
31.	O-Ring Gasket		9000710	9000710	9000710	9000710	9000710

# Repair Parts (cont'd)



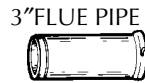
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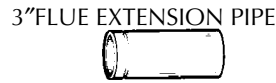
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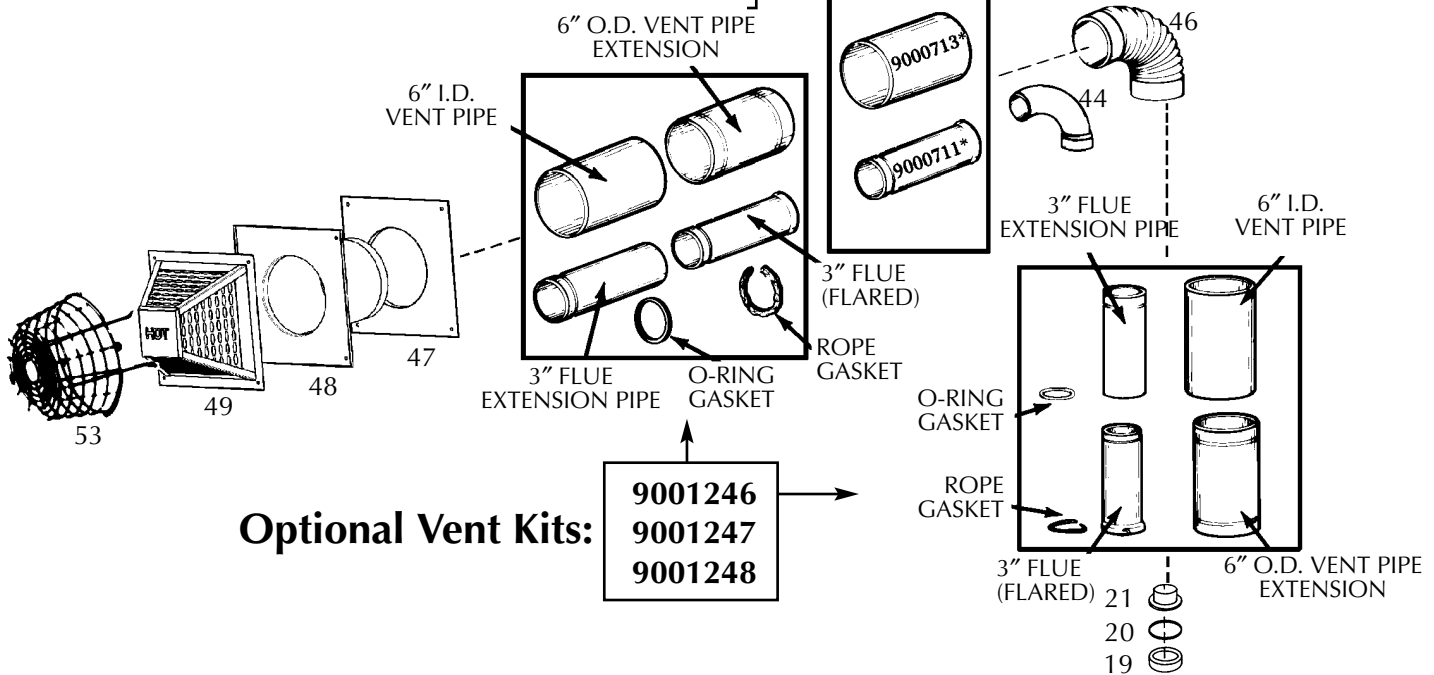


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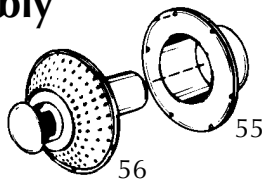


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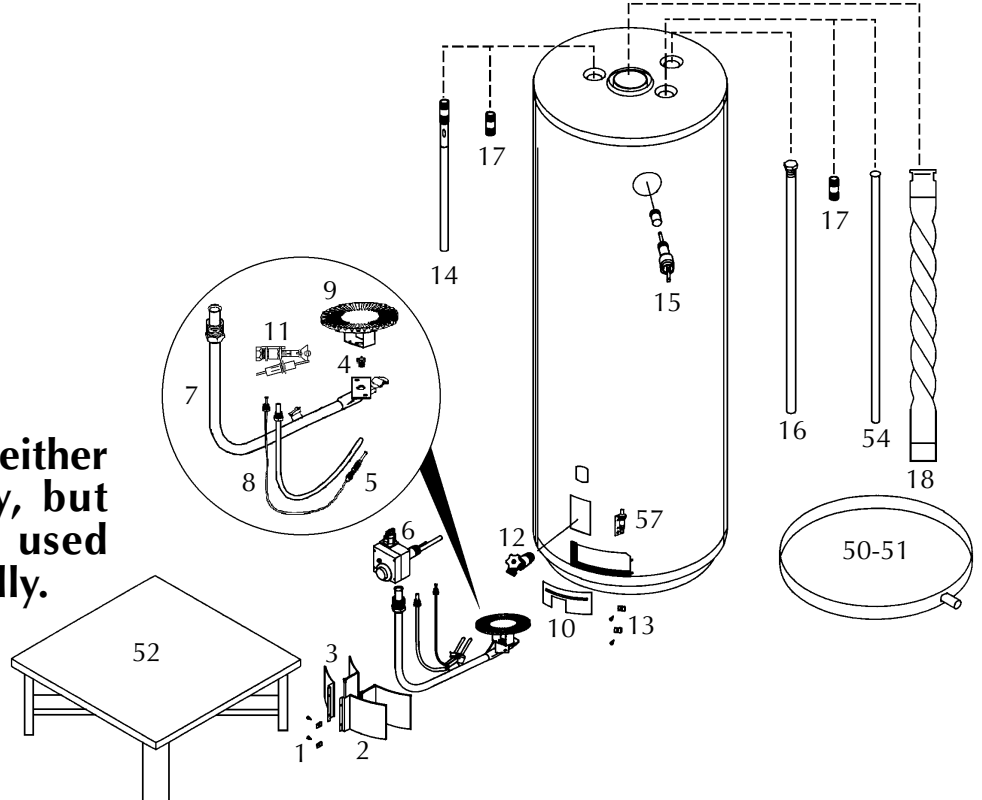
## Standard Vent Kit: 9000687



## Alternate Brown-Porcelain Coated Vent Cap and Vent Wall Assembly



Each Vent Kit can be used either horizontally or vertically, but only one vent kit can be used horizontally and/or vertically.





# Repair Parts (cont'd)

KEY #	PARTS DESCRIPTION	GAL. CAP.	40	50	40	50	75
		BTU's in 1000's NAT/L.P.	36/36	38/38	40/40	48/44	55 NAT.
	Kit AVK-2 No. 9001247						
32.	3" I.D. x 13 <sup>7</sup> / <sub>8</sub> " Flue Extension Pipe with Gaskets		9001281	9001281	9001281	9001281	9001281
33.	6" O.D. x 13 <sup>5</sup> / <sub>8</sub> " Vent Extension Pipe		9001275	9001275	9001275	9001275	9001275
34.	3" O.D. x 13 <sup>3</sup> / <sub>8</sub> " Flue Pipe		9001284	9001284	9001284	9001284	9001284
35.	6" I.D. x 13 <sup>5</sup> / <sub>8</sub> " Vent Pipe		9001278	9001278	9001278	9001278	9001278
36.	Rope Gasket		9000712	9000712	9000712	9000712	9000712
37.	O-Ring Gasket		9000710	9000710	9000710	9000710	9000710
	Kit AVK-3 No. 9001248						
38.	3" I.D. x 24 <sup>3</sup> / <sub>8</sub> " Flue Extension Pipe with Gaskets		9001282	9001282	9001282	9001282	9001282
39.	6" O.D. x 24 <sup>3</sup> / <sub>8</sub> " Vent Extension Pipe		9001276	9001276	9001276	9001276	9001276
40.	3" O.D. x 24 <sup>3</sup> / <sub>8</sub> " Flue Pipe		9001285	9001285	9001285	9001285	9001285
41.	6" I.D. x 24 <sup>3</sup> / <sub>8</sub> " Vent Pipe		9001279	9001279	9001279	9001279	9001279
42.	Rope Gasket		9000712	9000712	9000712	9000712	9000712
43.	O-Ring Gasket		9000710	9000710	9000710	9000710	9000710
44.	3" Flue Elbow		9000718	9000718	9000718	9000718	9000718
45.	Rope Gasket		9000712	9000712	9000712	9000712	9000712
46.	6" Vent Elbow		9000719	9000719	9000719	9000719	9000719
47.	Inside Wall Collar		9003168	9003168	9003168	9003168	9003168
48.	6" Vent Wall Assembly		9003166	9003166	9003166	9003166	9003166
49.	Vent Cap Assembly		9003165	9003165	9003165	9003165	9003165
50.	24" Diameter Drain Pan w/Side Drain		9002769	9002769	9002769	9002769	—
51.	28" Diameter Drain Pan w/Side Drain		—	—	—	—	9001608
52.	24" Base Stand		9001422	9001422	9001422	9001422	—
53.	Wire Grill Protector		9000915	9000915	9000915	9000915	9000915
54.	Dip Tube		*9002365	9001595	*9002365	*9002361	*9001598
55.	6" Vent Wall Assembly		9000724	9000724	9000724	9000724	9000724
56.	Brown-Porcelain Vent Cap Assembly		9000725	9000725	9000725	9000725	9000725
57.	Piezo Ignitor w/Bracket		9001940	9001940	9001940	9001940	9001940

\*NOTE: Some models are factory equipped with a special dip tube to retard a build-up of dissolved solids which is not illustrated and is not a replaceable part.

Now that you have purchased this water heater, should a need ever exist for repair parts or service, simply contact the company it was purchased from or direct from the manufacturer listed on the rating plate on the water heater.

Be sure to provide all pertinent facts when you call or visit.

**Selling prices will be furnished on request or parts will be shipped at prevailing prices and you will be billed accordingly.**

The model number of your water heater will be found on the rating plate located above the gas control valve.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

MODEL NUMBER	TYPE GAS
SERIAL NUMBER	PART DESCRIPTION

**THIS IS A REPAIR PARTS LIST, NOT A PACKING LIST.**

# *Notes*

# *Notes*

