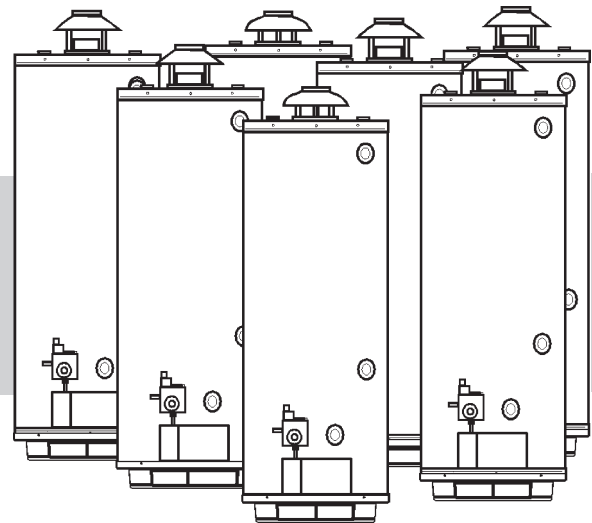


## RESIDENTIAL GAS WATER HEATERS

FOR USE ONLY IN MANUFACTURED 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.



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

— Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

— WHAT TO DO IF YOU SMELL GAS:

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

— Installation and service must be performed by a qualified installer, service agency or the gas supplier.

C3 Technology® Gas Water Heaters meet the new ANSI Z21.10.1 standard that deals with the accidental or unintended ignition of flammable vapors, such as those emitted by gasoline.



### WARNING

Read and understand instruction manual and safety messages before installing, operating or servicing this water heater.

Failure to follow instructions and safety messages could result in death or serious injury.

Instruction manual must remain with water heater.

### • For Your Safety •

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

**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 ON THE WATER HEATER.

**KEEP THIS MANUAL IN THE POCKET ON HEATER FOR FUTURE REFERENCE  
WHENEVER MAINTENANCE ADJUSTMENT OR SERVICE IS REQUIRED.**





# SAFE INSTALLATION, USE AND SERVICE

Your safety and the safety of others is extremely important in the installation, use and servicing of this water heater.

Many safety-related messages and instructions have been provided in this manual and on your own water heater to warn you and others of a potential injury hazard. Read and obey all safety messages and instructions throughout this manual. It is very important that the meaning of each safety message is understood by you and others who install, use or service this water heater.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

	<b>DANGER</b> indicates an imminently hazardous situation which, if not avoided, could result in death or injury.
	<b>WARNING</b> indicates a potentially hazardous situation which, if not avoided, could result in death or injury.
	<b>CAUTION</b> indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	<b>CAUTION</b> used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, could result in property damage.

All safety messages will generally tell you about the type of hazard, what can happen if you do not follow the safety message and how to avoid the risk of injury.


The California Safe Drinking Water and Toxic Enforcement Act requires the Governor of California to publish a list of substances known to the State of California to cause cancer, birth defects, or other reproductive harm, and requires businesses to warn of potential exposure to such substances.

This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm. This appliance can cause low level exposure to some of the substances listed, including formaldehyde, carbon monoxide and soot.

## IMPORTANT DEFINITIONS

- **Qualified Installer:** A qualified installer must have ability equivalent to a licensed tradesman in the fields of plumbing, air supply, venting and gas supply, including a thorough understanding of the requirements of the National Fuel Gas Code as it relates to the installation of gas fired water heaters. The qualified installer must also be familiar with the design features and have a thorough understanding of this instruction manual.
- **Service Agency:** A service agency also must have ability equivalent to a licensed tradesman in the fields of plumbing, air supply, venting and gas supply, including a thorough understanding of the requirements of the National Fuel Gas Code as it relates to the installation of gas fired water heaters. The service agency must also have a thorough understanding of this instruction manual, and be able to perform repairs strictly in accordance with the service guidelines provided by the manufacturer.
- **Gas Supplier:** The Natural Gas or Propane Utility or service who supplies gas for utilization by the gas burning appliances within this application. The gas supplier typically has responsibility for the inspection and code approval of gas piping up to and including the Natural Gas meter or Propane storage tank of a building. Many gas suppliers also offer service and inspection of appliances within the building.

# GENERAL SAFETY




**⚠ WARNING**

Read and understand instruction manual and safety messages before installing, operating or servicing this water heater.

Failure to follow instructions and safety messages could result in death or serious injury.

Instruction manual must remain with water heater.

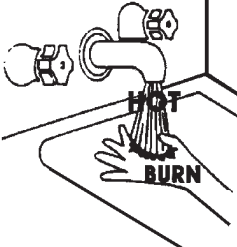


**⚠ WARNING**

**Fire Hazard**

For continued protection against risk of fire:

- Do not install water heater on carpeted floor.
- Do not operate water heater if flood damaged.



**⚠ DANGER**

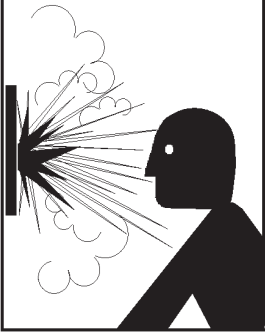
Water temperature over 125°F (52°C) can cause severe burns instantly resulting in severe injury or death.

Children, the elderly, and the physically or mentally disabled are at highest risk for scald injury.

Feel water before bathing or showering.

Temperature limiting valves are available.

Read instruction manual for safe temperature setting.



**⚠ WARNING**

**Explosion Hazard**



- Overheated water can cause water tank explosion.
- Properly sized temperature and pressure relief valve must be installed in opening provided.

**⚠ WARNING**

**Fire or Explosion Hazard**


- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Avoid all ignition sources if you smell LP gas or natural gas.
- Do not expose water heater control to excessive gas pressure.
- Use only gas shown on rating plate.
- Follow conversion instructions listed in manual when converting to opposite gas.
- Maintain required clearances to combustibles.
- Keep ignition sources away from faucets after extended period of non-use.

Read instruction manual before installing, using or servicing water heater.

**⚠ WARNING**

**Breathing Hazard - Carbon Monoxide Gas**



- Water heater with draft hood installed must be properly vented to a roof jack which terminates outdoors.
- Do not operate water heater if flood damaged.
- High altitude orifice must be installed for operation above 7,700 feet (2,346 m).
- Do not operate if soot buildup.
- Do not obstruct water heater air intake with insulating jacket.
- Do not place chemical vapor emitting products near water heater.
- Gas and carbon monoxide detectors are available.

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

**CAUTION**

**Improper installation and use may result in property damage.**

- Do not operate water heater if flood damaged.
- Inspect and replace anode.
- Install in location with drainage.
- Fill tank with water before operation.
- Be alert for thermal expansion.

Refer to instruction manual for installation and service.

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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
- ASME - American Society of Mechanical Engineers
- GAMA - Gas Appliance Manufacturer's Association

This gas-fired water heater is design certified by CSA INTERNATIONAL under American National Standard/CSA Standard for Gas Water Heaters for Manufactured Home Installation, ANSI Z21.10.1 • CSA 4.1 (current edition).

### PREPARING FOR THE INSTALLATION

1. Read the "General Safety" section, page 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 throughout 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. Instructions to Manufactured Home Manufacturers:  
The installation must conform with the Manufactured Home Construction and Safety Standards Title 24 CFR, Part 3280.

Instruction for replacement installation:

The installation must conform with these instructions and the local code authority having jurisdiction. In the absence of local codes, installations shall comply with the National Fuel Gas Code ANSI Z223.1/NFPA 54, current edition. This publication is available from the Canadian Standards Association, 8501 East Pleasant Valley Rd., Cleveland Ohio 44131, or The National Fire Protection Association, 1 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, see Figures 1 and 2.

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 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.

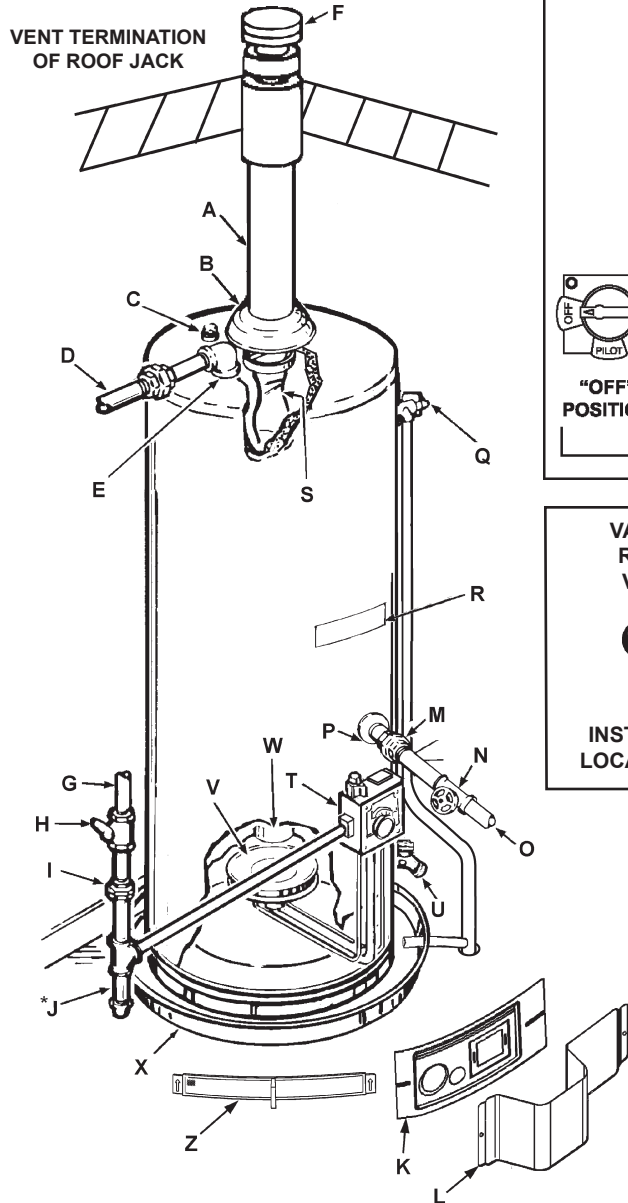
# TYPICAL INSTALLATIONS

## GET TO KNOW YOUR WATER HEATER - GAS MODELS

- |                             |                                     |                                |
|-----------------------------|-------------------------------------|--------------------------------|
| A Vent Pipe                 | J Drip Leg (Sediment Trap)          | S Flue Baffle                  |
| B Drafhthood                | K Inner Door                        | T Thermostat                   |
| C Anode                     | L Outer door                        | U Drain Valve                  |
| D Hot Water Outlet          | M Union                             | V Pilot and Main Burner        |
| E Outlet                    | N Inlet Water Shut-off Valve        | W Flue                         |
| F Roof Jack                 | O Cold Water Inlet                  | X Drain Pan                    |
| G Gas Supply                | P Inlet Dip Tube/Nipple             | Y Thermostat Shield (optional) |
| H Manual Gas Shut-off Valve | Q Temperature-Pressure Relief Valve | Z Air Intake Screen            |
| I Ground Joint Union        | R Rating Plate                      |                                |

\* INSTALL IN ACCORDANCE WITH LOCAL CODES.

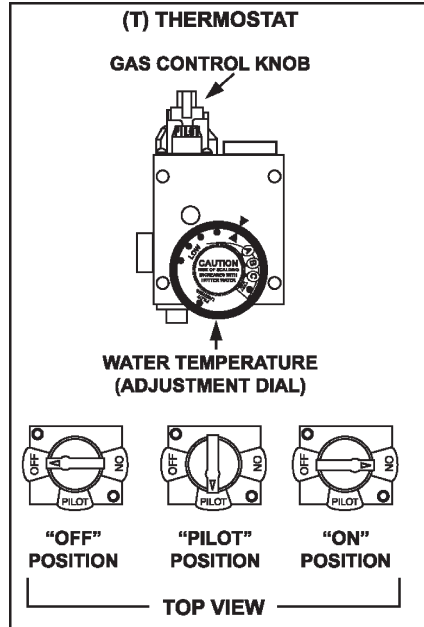
\* DRIP LEG AS REQUIRED BY LOCAL CODES.



\* ALL PIPING MATERIALS TO BE SUPPLIED BY CUSTOMERS.

\* 50 gallon unit has top connections and no side connection as shown here.

### WHITE-RODGERS



### ROBERTSHAW

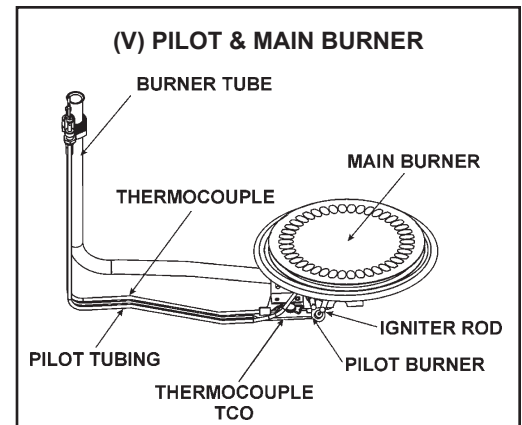
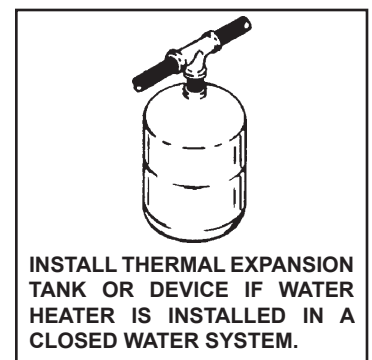
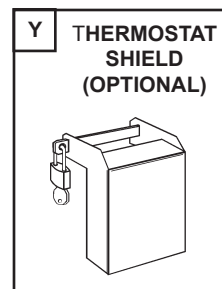
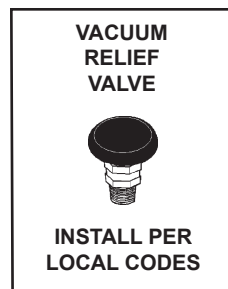
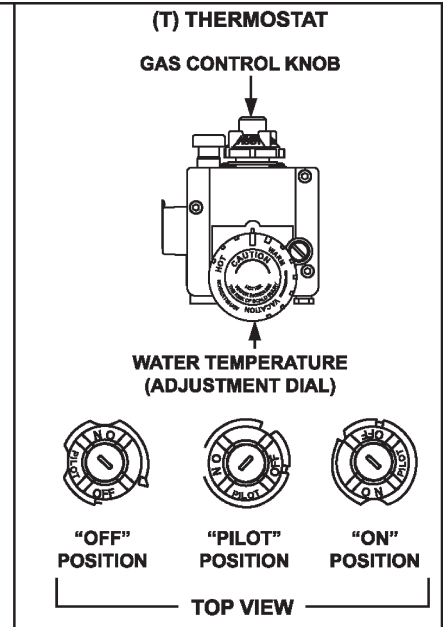
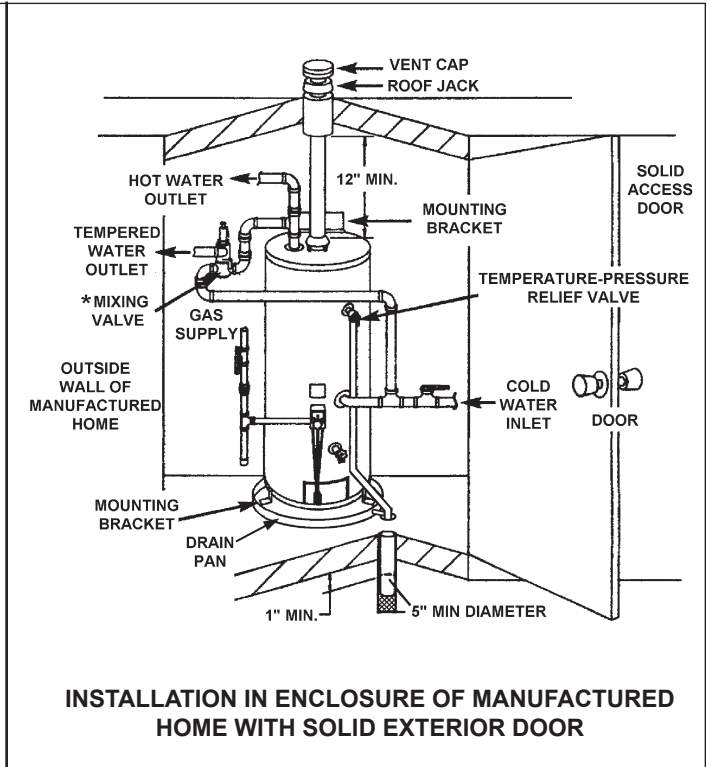
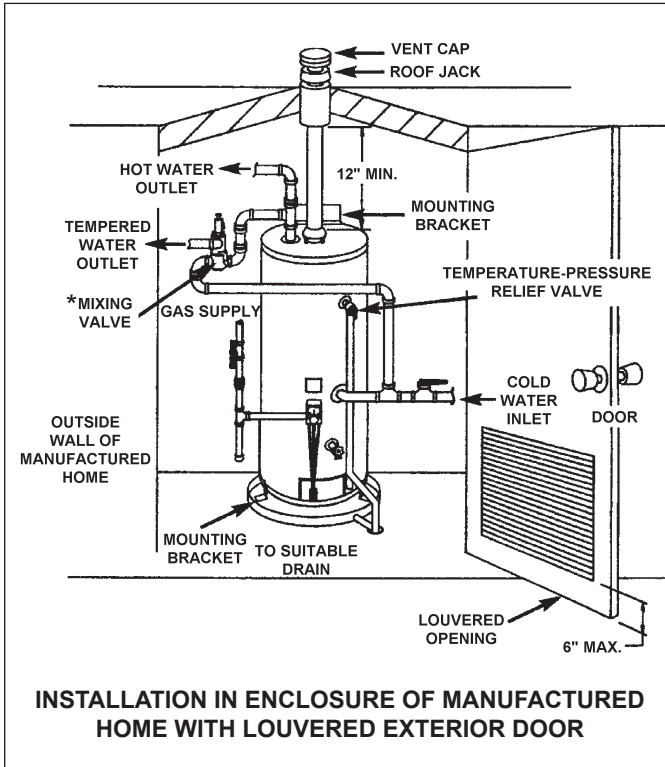


FIGURE 1.

# TYPICAL INSTALLATIONS

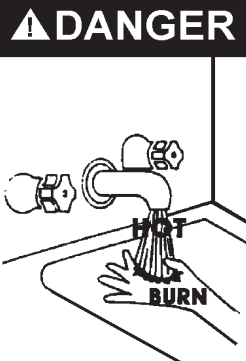


\* MIXING VALVE USAGE

FIGURE 2.

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.

	<p><b>⚠ DANGER</b></p> <p>Water temperature over 125°F (52°C) can cause severe burns instantly resulting in severe injury or death.</p> <p>Children, the elderly, and the physically or mentally disabled are at highest risk for scald injury.</p> <p>Feel water before bathing or showering.</p> <p>Temperature limiting valves are available.</p> <p>Read instruction manual for safe temperature setting.</p>
---	---

## 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, 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. Consult a Qualified Installer or Service Agency. Follow mixing valve manufacturer's instructions for installation of the valves. Before changing the factory setting on the thermostat, read the "Temperature Regulation" section in this manual, see Figures 29 and 30.

# LOCATING THE NEW WATER HEATER

## FACTS TO CONSIDER ABOUT THE LOCATION

This manufactured home gas-fired water heater is for use in a manufactured home. 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 for use only in manufactured homes and is not intended for outdoor installation.**

**The installation of this water heater must be within an enclosure so as to separate the appliance combustion system and venting system from the interior atmosphere of the manufactured home. There shall not be any door, removable access panel, or other opening into the enclosure from the inside of the manufactured home.**

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

1. An enclosure with an exterior access door incorporating a single opening positioned a maximum of 6 inches above the lower edge of the access door and which may incorporate either 1/4 inch wire mesh or louvers. When 1/4 inch wire mesh is used, the size of the opening must be a minimum of 20 square inches. When the louvers are used, the free area must be a minimum of 20 square inches, see Figure 2 page 6.
2. An optional enclosure incorporating a solid exterior access door, when a 5 inch or 8 inch diameter, or 20 square inch minimum equivalent free air opening is located in the floor of the enclosure. The opening must be covered by a 1/4 inch wire mesh, see Figure 2 page 6.

Install water heater into closet so as to have 0 inches minimum clearance at sides and back. Clearance of 4 inches is needed to front to accommodate the gas control valve, see Figure 3. Be sure to allow adequate clearance for servicing the water heater and for access to the piping and temperature-pressure relief valve.

The water heater should be secured to the floor and to the wall of the enclosure with the mounting brackets provided. For bracket location refer to "Securing Water Heater to Floor and Wall" in the "Installing the New Water Heater" section.

When a manufactured home is skirted, an air intake opening with a minimum free area of 32 square inches must be provided in the skirt. Other gas fired appliances in the home will require additional free air openings; consult these manufacturers for correct sizing.

If the opening is covered by louvers or screen, the total free area must be 32 square inches.

## CAUTION

### Property Damage Hazard

- All water heaters eventually leak
- Do not install without adequate drainage.

Installation of the water heater must be accomplished in such a manner that if the tank or any connections should leak, the flow 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 (51 mm) greater than the water heater dimensions and must be piped to an adequate drain. The pan must not restrict combustion air flow.

Water heater life depends upon water quality, water pressure and the environment in which the water heater is installed. Water heaters are sometimes installed in locations where leakage may result in property damage, even with the use of a drain pan piped to a drain. However, unanticipated damage can be reduced or prevented by a leak detector or water shut-off device used in conjunction with a piped drain pan. These devices are available from some plumbing supply wholesalers and retailers, and detect and react to leakage in various ways:

- Sensors mounted in the drain pan that trigger an alarm or turn off the incoming water to the water heater when leakage is detected.
- Sensors mounted in the drain pan that turn off the water supply to the entire home when water is detected in the drain pan.
- Water supply shut-off devices that activate based on the water pressure differential between the cold water and hot water pipes connected to the water heater.
- Devices that will turn off the gas supply to a gas water heater while at the same time shutting off its water supply.

## ! WARNING

### Fire or Explosion Hazard

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Avoid all ignition sources if you smell LP gas or natural gas.
- Do not expose water heater control to excessive gas pressure.
- Use only gas shown on rating plate.
- Follow conversion instructions listed in manual when converting to opposite gas.
- Maintain required clearances to combustibles.
- Keep ignition sources away from faucets after extended period of non-use.




Read instruction manual before installing, using or servicing water heater.



INSTALLATIONS 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.] and other substances such as adhesives, etc.) emit flammable vapors which can be ignited by a gas water heater's pilot light or main burner. The resulting flashback and fire can cause death or serious burns to anyone in the area. Even though this water heater is a flammable vapors ignition resistant water heater and is designed to reduce the chances of flammable vapors being ignited, gasoline and other flammable substances should never be stored or used in the same vicinity 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.

	<b>⚠ WARNING</b>
	<b>Fire Hazard</b>
For continued protection against risk of fire:	
<ul style="list-style-type: none"> <li>• Do not install water heater on carpeted floor.</li> <li>• Do not operate water heater if flood damaged.</li> </ul>	

This water heater must not be installed directly on carpeting. Carpeting must be protected by metal or wood panel beneath the appliance extending beyond the full width and depth of the appliance by at least 3 inches (76.2 mm) 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.

<b>⚠ WARNING</b>	
<b>Fire or Explosion Hazard</b>	
Read instruction manual before installing, using or servicing water heater.	
	<ul style="list-style-type: none"> <li>• Improper use may result in fire or explosion.</li> <li>• Maintain required clearances to combustibles.</li> </ul>
	

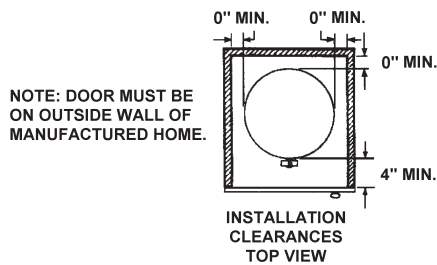



FIGURE 3.

Minimum clearances between the water heater and combustible and noncombustible construction are 0" at the sides and rear, 4" at the front, and 6" from the vent pipe. Clearance from the top of the draft hood is 12". Refer to the label on the water heater located adjacent to the gas control valve for all clearances.

<b>⚠ WARNING</b>	
<b>Breathing Hazard - Carbon Monoxide Gas</b>	
	<ul style="list-style-type: none"> <li>• Install water heater in accordance with the instruction manual and NFPA 54.</li> <li>• To avoid injury, combustion and ventilation air must be taken from outdoors.</li> <li>• Do not place chemical vapor emitting products near water heater.</li> </ul>
	Breathing carbon monoxide can cause brain damage or death. Always read and understand instruction manual.


A gas water heater cannot operate properly without the correct amount of air for combustion. Do not install in a confined area such as a closet, unless you provide air as shown in the Typical Installations, see Figure 2 page 6. Never obstruct the flow of ventilation air. If you have any doubts or questions at all, call your gas supplier. Failure to provide the proper amount of combustion air can result in a fire or explosion and cause death, serious bodily injury, or property damage.

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.

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.

### INSULATION BLANKETS

Insulation blankets are available to the general public for external use on gas water heaters but are not necessary with these products. The purpose of an insulation blanket is to reduce the standby heat loss encountered with storage tank heaters. Your water heater meets or exceeds the National Appliance Energy Conservation Act standards with respect to insulation and standby loss requirements, making an insulation blanket unnecessary.

<b>⚠ WARNING</b>	
<b>Breathing Hazard - Carbon Monoxide Gas</b>	
	<ul style="list-style-type: none"> <li>• Do not obstruct water heater air intake with insulating blanket.</li> <li>• Gas and carbon monoxide detectors are available.</li> <li>• Install water heater in accordance with the instruction manual.</li> </ul>
	Breathing carbon monoxide can cause brain damage or death. Always read and understand instruction manual.

Should you choose to apply an insulation blanket to this heater, you should follow these instructions (For identification of components mentioned below, see Figure 1). Failure to follow these instructions can restrict the air flow required for proper combustion, potentially resulting in fire, asphyxiation, serious personal injury or death.

- Do not apply insulation to the top of the water heater, as this will interfere with safe operation of the draft hood.
- Do not cover the outer door, thermostat or temperature & pressure relief valve.
- Do not allow insulation to come within 2" (50.8 mm) of the floor to prevent blockage of combustion air flow to the burner.
- Do not cover the instruction manual. Keep it on the side of the water heater or nearby for future reference.
- Do obtain new warning and instruction labels from the manufacturer for placement on the blanket directly over the existing labels.
- Do inspect the insulation blanket frequently to make certain it does not sag, thereby obstructing combustion air flow.



# INSTALLING THE NEW WATER HEATER

## SECURING WATER HEATER TO FLOOR AND WALL

The water heater must be secured to the floor and to the wall of the enclosure with the three mounting brackets and screws packaged in the carton with the water heater. The two small brackets stamped #0110064 are used to attach the water heater to the floor and the one large bracket #0110063 is used to secure the top of the water heater to the wall.

Because of installation variances these brackets can be located at any points around the circumference of the jacket. When the bracket locations are determined using the 1/8 inch drill bit for a pattern, drill only through the outer jacket of the water heater. Then using the screws provided, secure the bracket to the water heater, floor and wall, see Figure 4. If the heater is installed in a drain pan, seal the drilled holes and screws with a heavy bead of silicone sealant to prevent any potential water damage.

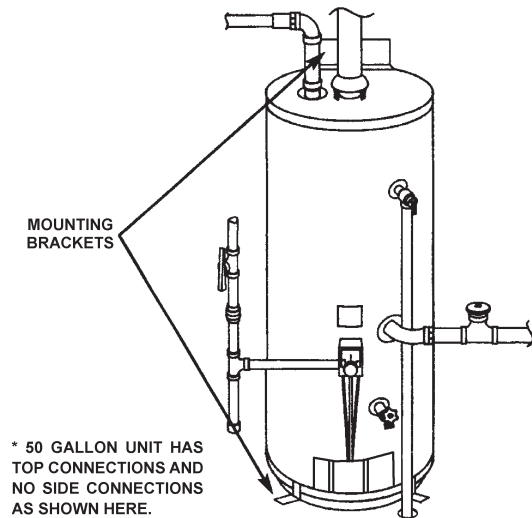


FIGURE 4.

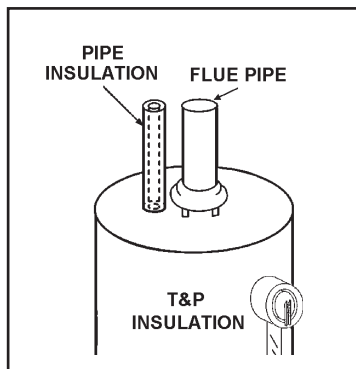
## T&P VALVE AND PIPE INSULATION

Remove insulation for T&P Valve and pipe connections from carton.

Fit pipe insulation over the hot water line. Make sure that the insulation is against the top cover of the heater.

Fit T&P Valve insulation over valve. Make sure that the insulation does not interfere with the lever of the T&P valve.

Secure all insulation using tape.



## WATER PIPING

	<b>⚠ DANGER</b> Water temperature over 125°F (52°C) can cause severe burns instantly resulting in severe injury or death.
	Children, the elderly, and the physically or mentally disabled are at highest risk for scald injury.
	Feel water before bathing or showering.
	Temperature limiting valves are available. Read instruction manual for safe temperature setting.

### 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, cleaning 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, see Figure 2. Valves for reducing point of use temperature by mixing cold and hot water are also available:

Consult a Qualified Installer or Service Agency. Follow manufacturer's instructions for installation of the valves. Before changing the factory setting on the thermostat, read the "Temperature Regulation" section in this manual.

<b>⚠ WARNING</b>
<b>Toxic Chemical Hazard</b>
• Do not connect to non-potable water system.

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

Toxic chemicals, such as those used for boiler treatment shall not be introduced into this system.

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 a service agency for assistance in controlling these situations.

**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.

## WATER PIPING PRESSURE TEST

<b>⚠ WARNING</b>
<b>Air Pressure Hazard</b>
<ul style="list-style-type: none"> <li>• If water piping system is to be air pressure tested, the water heater must be disconnected from the water piping system.</li> <li>• Failure to disconnect the water heater during air pressure testing of the water system could result in DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE.</li> </ul>

This section is only for the manufacturer installing the water heater when the installation is to comply with H.U.D. Standards.

When testing the water ways, H.U.D. Standards state:

"Water distribution system. All water piping in the water distribution system shall be subjected to a pressure test. The test shall be made by subjecting the system to air or water at 100 psi for 15 minutes without loss of pressure. **When air pressure is used, the water heater shall not be connected during the test**".

**NOTE:** If water piping system is to be air pressure tested, the water heater must be disconnected from the water piping system. Failure to disconnect the water heater during air pressure testing of water piping system could result **IN DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE.**

<b>CAUTION</b>
<b>Property Damage Hazard</b>
<ul style="list-style-type: none"> <li>• Avoid water heater damage.</li> <li>• Install thermal expansion tank if necessary.</li> <li>• Do not apply heat to cold water inlet.</li> <li>• Contact qualified installer or service agency.</li> </ul>

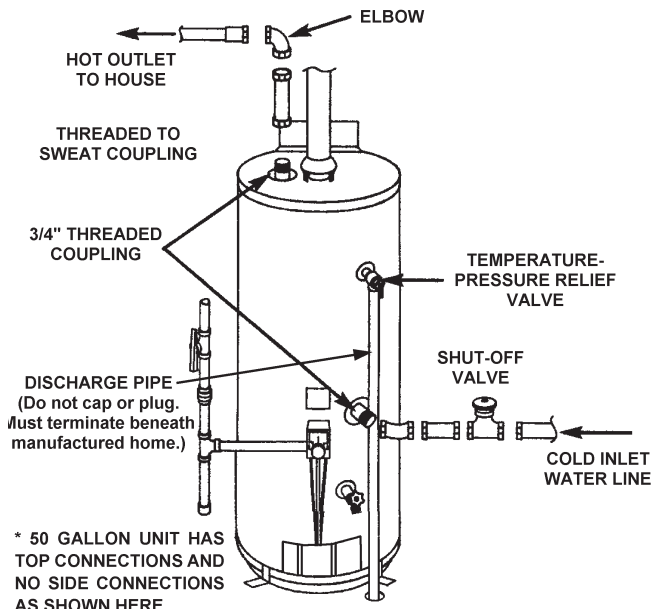


FIGURE 5.

Figure 5 shows the typical attachment of the water piping to the water heater. The water heater is equipped with 3/4 inch NPT 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. It will harm the dip tube and damage the tank.

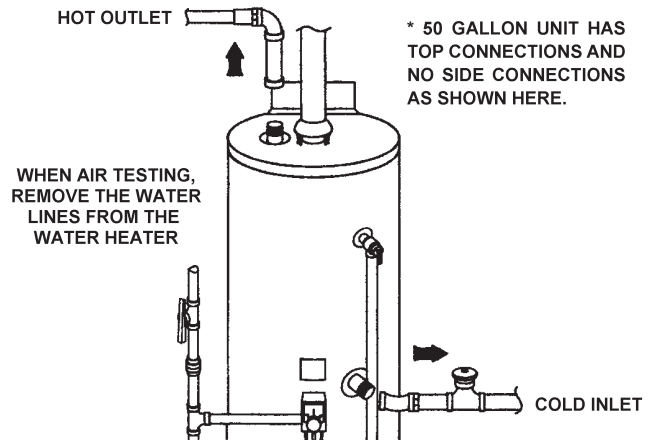
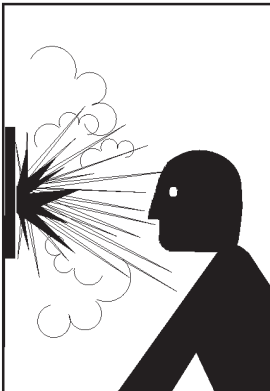


FIGURE 6.

## TEMPERATURE-PRESSURE RELIEF VALVE

<b>⚠ WARNING</b>
<b>Explosion Hazard</b>
 <ul style="list-style-type: none"> <li>• Temperature-Pressure relief valve must comply with ANSI Z21.22 and ASME code.</li> <li>• Properly sized temperature-relief valve must be installed in opening provided.</li> <li>• Can result in overheating in overheating and excessive tank pressure.</li> <li>• Can cause serious injury or death.</li> </ul>

This heater is provided with a properly certified combination temperature - pressure relief valve by the manufacturer.

The valve is certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment of materials as meeting the requirements for Relief Valves for Hot Water Supply Systems, ANSI Z21.22 • CSA 4.4, and the code requirements of ASME.

If replaced, the valve must meet the requirements of local codes, but not less than a combination temperature and pressure relief valve certified as indicated in the above paragraph.

The valve must be marked with a maximum set pressure not to exceed the marked hydrostatic working pressure of the water heater (150 psi = 1,035 kPa) and a discharge capacity not less than the water heater input rate as shown on the model rating plate.

For safe operation of the water heater, the relief valve must not be removed from its designated opening nor plugged.

The temperature-pressure relief valve must be installed directly into the fitting of the water heater designed for the relief valve. Position the valve downward and provide tubing so that any discharge will exit only 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 (9.14 m), or use of more than four elbows can cause restriction and reduce the discharge capacity of the valve, see Figure 7.

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 inch air gap is provided. To prevent bodily injury, hazard to life, or property damage, 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.

<b>CAUTION</b>
<b>Water Damage Hazard</b>
<ul style="list-style-type: none"> <li>• Temperature-pressure relief valve discharge pipe must terminate at adequate drain.</li> </ul>

The Discharge Pipe:

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

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.

<b>! DANGER</b>	<p>Water temperature over 125°F (52°C) can cause severe burns instantly resulting in severe injury or death.</p> <p>Children, the elderly, and the physically or mentally disabled are at highest risk for scald injury.</p> <p>Feel water before bathing or showering.</p> <p>Temperature limiting valves are available.</p> <p>Read instruction manual for safe temperature setting.</p>

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.

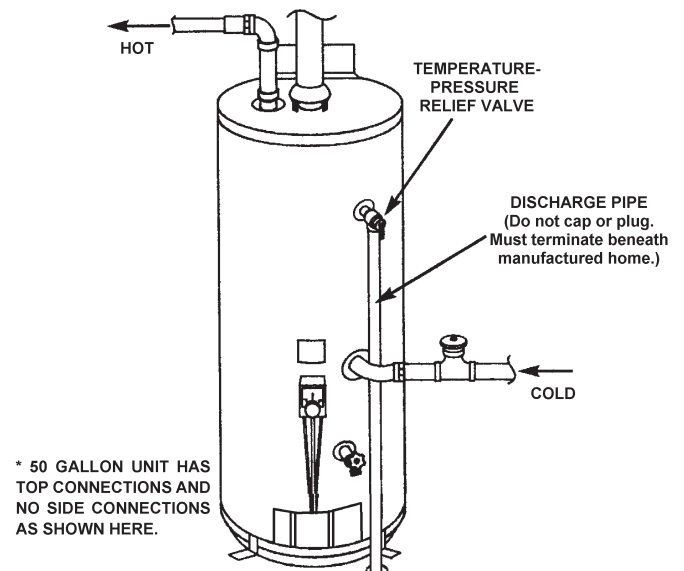


FIGURE 7.

## FILLING THE WATER HEATER

<b>CAUTION</b>
<b>Property Damage Hazard</b>
<ul style="list-style-type: none"> <li>• Avoid water heater damage.</li> <li>• Fill tank with water before operating.</li> </ul>

Never use this water heater unless it is completely full of 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 water piping and connections for leaks. Repair as needed.

## VENTING

Place the draft hood legs in the receiving holes on the top of the water heater. The legs will snap in the holes to give a tight fit.

Place the vent pipe over the draft hood. With the vent pipe in position, drill a small hole through both the vent pipe and draft hood. Secure them together with a sheet metal screw.

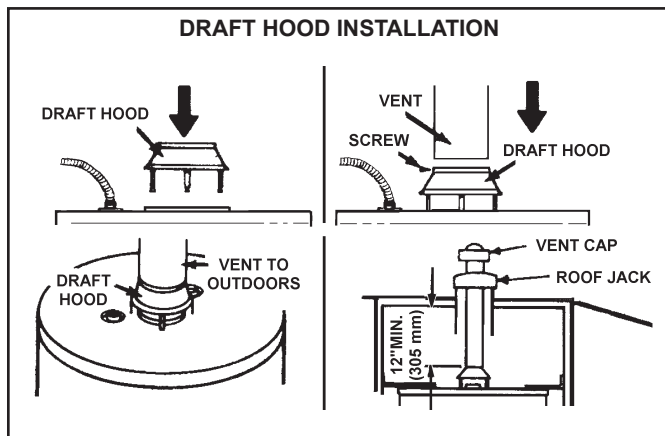



FIGURE 8.

# ⚠ WARNING

Breathing Hazard - Carbon Monoxide Gas



- Vent dampers must be certified in accordance with ANSI Z21.68.
- Vent damper must permit proper drafting of water heater.
- Install properly sized venting.
- Do not install without venting outdoors.
- Do not install without draft hood.
- Be alert for obstructed or deteriorated vent system to avoid serious injury or death.

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

**VENT DAMPERS** - Any vent damper, whether it is operated thermally or otherwise must be removed if its use inhibits proper drafting of the water heater.

**Thermally Operated Vent Dampers:** Gas-fired water heaters having thermal efficiency in excess of 80% may produce a relatively low flue gas

temperature. Such temperatures may not be high enough to properly open thermally operated vent dampers. This would cause spillage of the flue gases and may cause carbon monoxide poisoning.

Vent dampers must bear evidence of certification as complying with the current edition of the American National Standard ANSI Z21.68 (ANSI Z21.66 & 67, respectively, cover electrically and mechanically actuated vent dampers). Before installation of any vent damper, consult the local gas utility for further information.

To insure proper venting of this gas-fired water heater, the correct vent pipe diameter must be utilized. Any additions or deletions of other gas appliances on a common vent with this water heater may adversely affect the operation of the water heater. Consult your gas supplier if any such changes are planned.

Periodically check the venting system for signs of obstruction or deterioration and replace if needed.

The combustion and ventilation air flow must not be obstructed.

The water heater with draft hood installed must be connected to a roof jack, which terminates 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.

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

The vent pipe from the water heater must be no less than the diameter of the draft hood outlet on the water heater.

All vent gases must be completely vented to the outdoors of the structure (dwelling). Install only the draft hood provided with the new water heater and no other draft hood.

Vent pipes must be secured at each joint with sheet metal screws.

There must be a minimum of 6 inches (153 mm) clearance between single wall vent pipe and any combustible material. For other than single wall, follow vent pipe manufacturer's clearance specifications.

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

The water heater must be connected to a roof jack: The vent pipe from the water heater to the roof jack must be no less than the diameter of the draft hood outlet (min. 3" [76 mm]) on the water heater.

This water heater may be installed with single wall or Type B vent pipe connection to the draft hood and the following U.L. listed roof jacks not furnished.


- Van Dyke Ind. No. 987
- Vent Line No. 2073
- White Metal Products 3RJ

There must be a minimum clearance of 12" (305 mm) between the top of the draft hood and the top of the enclosure.

The draft hood and combustion air inlet to the water heater must be in the same atmospheric pressure zone. Do not separate by a wall, shelf, ceiling, partition, or any other means.


There must be a minimum of 6 inch clearance between single wall vent pipe and any combustible material. Fill and seal any clearance between single wall vent pipe and combustible material with mortar mix, cement or other noncombustible substance. For other than single wall, follow vent pipe manufacturer's clearance specifications.

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

<b>⚠ WARNING</b>	
<b>Breathing Hazard - Carbon Monoxide Gas</b>	
	<ul style="list-style-type: none"> <li>• Flue gases may escape if vent pipe is not connected.</li> <li>• Do not store corrosive chemicals in vicinity of water heater.</li> <li>• Chemical corrosion of flue and vent system can cause serious injury or death.</li> <li>• Contact a qualified installer or service agency.</li> </ul>
<p>Breathing carbon monoxide can cause brain damage or death. Always read and understand instruction manual.</p>	

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.

## GAS PIPING

<b>⚠ WARNING</b>	
<b>Fire and Explosion Hazard</b>	
	<ul style="list-style-type: none"> <li>• Do not use water heater with any gas other than the gas shown on the rating plate.</li> <li>• Excessive pressure to gas control valve can cause serious injury or death.</li> <li>• Turn off gas lines during installation.</li> <li>• Contact qualified installer or service agency.</li> </ul>

Make sure the gas supplied is the same type listed on the model rating plate. The inlet gas pressure must not exceed 10.5" W.C. for natural gas and 13" W.C. for propane (L.P.) gas. The minimum inlet gas pressure shown on the rating plate is that which will permit firing at rated input.

If the gas control valve is subjected to pressures exceeding 1/2 pound per square inch (3.5 kPa), the damage to the gas control valve could result in a fire or explosion from leaking gas.

If the main gas line Shut-off serving all gas appliances is used, also turn "off" the gas at each appliance. Leave all gas appliances shut "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/NFPA 54 and your gas supplier 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 shut off 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.

<b>⚠ WARNING</b>	
<b>Breathing Hazard - Carbon Monoxide Gas</b>	
	<ul style="list-style-type: none"> <li>• High altitude orifice must be installed for operation above 7,700 feet (2,347 m).</li> <li>• Contact a qualified installer or service agency.</li> </ul>
<p>Breathing carbon monoxide can cause brain damage or death. Always read and understand instruction manual.</p>	

Water heaters covered in this manual have been tested and approved for installation at elevations up to 7,700 feet (2,347 m) above sea level. For installation above 7,700 feet (2,347 m), the water heater's Btu input should be reduced at the rate of 4 percent for each 1,000 feet (305 m) above sea level which requires replacement of the burner orifice in accordance with the National Fuel Gas Code ANSI Z223.1/NFPA 54. Contact your local gas supplier for further information.

Failure to replace the standard orifice with the proper high altitude orifice when installed at elevations above 7,700 feet (2,347 m) could result in improper and inefficient operation of the appliance, producing carbon monoxide gas in excess of the safe limits. This could result in serious injury or death. Contact your local gas supplier for any specific changes that may be required in your area.

<b>⚠ WARNING</b>	
<b>Fire and Explosion Hazard</b>	
	<ul style="list-style-type: none"> <li>• Use joint compound or tape compatible with propane.</li> <li>• Leak test before operating heater.</li> <li>• Disconnect gas piping and shut-off valve before pressure testing system.</li> </ul>

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

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

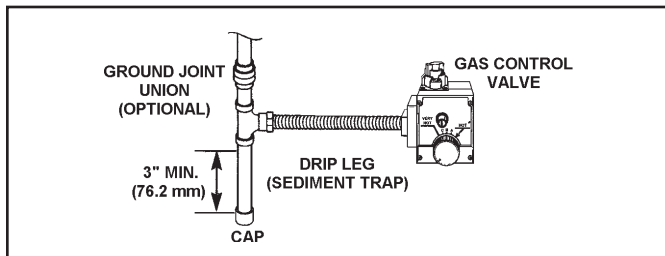
The appliance and its individual Shut-off valve shall be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 pound per square inch (3.5 kPa). It shall be isolated from the gas supply piping system by closing its individual manual Shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 pound per square inch (3.5 kPa).

Connecting the gas piping to the gas control valve of the water heater can be accomplished by either of the two methods shown in Figures 9 and 10.

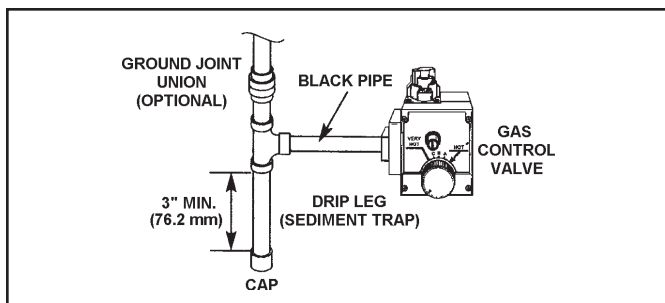
## SEDIMENT TRAPS



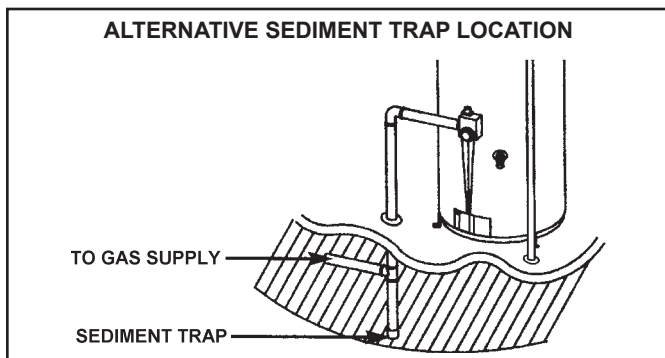
A sediment trap shall be installed as close to the inlet of the water heater as practical at the time of water heater installation. The sediment trap shall be either a tee fitting with a capped nipple in the bottom outlet or other device recognized as an effective sediment trap. If a tee fitting is used, it shall be installed in conformance with one of the methods of installation shown in Figures 9, 10 and 11.



**FIGURE 9. GAS PIPING WITH FLEXIBLE CONNECTOR.**



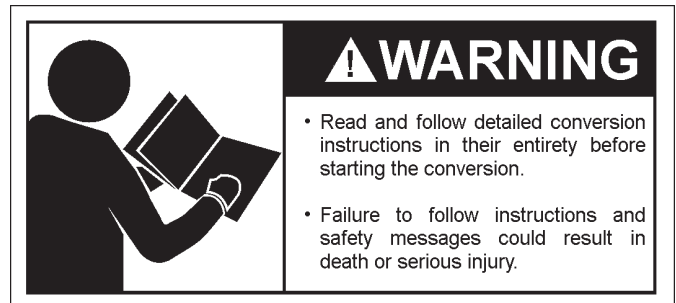
**FIGURE 10. GAS PIPING WITH ALL BLACK IRON PIPE TO GAS CONTROL.**



**FIGURE 11.**

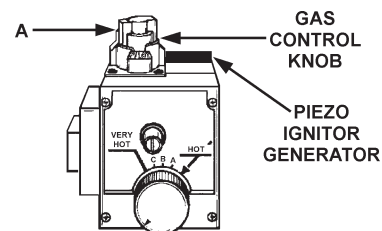
Contaminants in the gas lines may cause improper operation of the gas control valve that may result in fire or explosion. Before attaching the gas line be sure that all gas pipe is clean on the inside. To trap any dirt or foreign material in the gas supply line, a drip leg (sometimes called a sediment 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/NFPA 54.

## WHITE-RODGERS FUEL CONVERSION INSTRUCTIONS FROM NATURAL GAS TO PROPANE (L.P.) GAS



Fuel conversions shall be completed by a qualified service agency in accordance with the detailed conversion instructions and all applicable codes and requirements of the authority having jurisdiction. The information in these instructions must be followed to minimize the risk of fire or explosion and to prevent property damage, personal injury or death. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the appliance is checked as specified in the manufacturer's instructions.

1. Read and follow detailed conversion instructions below and also on the heater.
2. The conversion kit with necessary parts are in a bag attached to the side of the water heater.
3. Shut off the gas supply to the water heater.
4. Remove the outer door.
5. Rotate the thermostat dial on the water heater control counterclockwise (↺) until the main burner ignites and burns off all residual gas in the control and supply lines.
6. Rotate the thermostat dial clockwise (↻) back to the "PILOT LIGHTING" position.
7. Turn the gas control knob "A" to "PILOT". Depress knob slightly and rotate to "OFF" position, see Figure 12.



**FIGURE 12.**

8. Unplug wire from igniter assembly mounted to the top of the gas valve.

- Remove flange nuts holding inner door in place with 3/8" nut driver, see Figure 13.

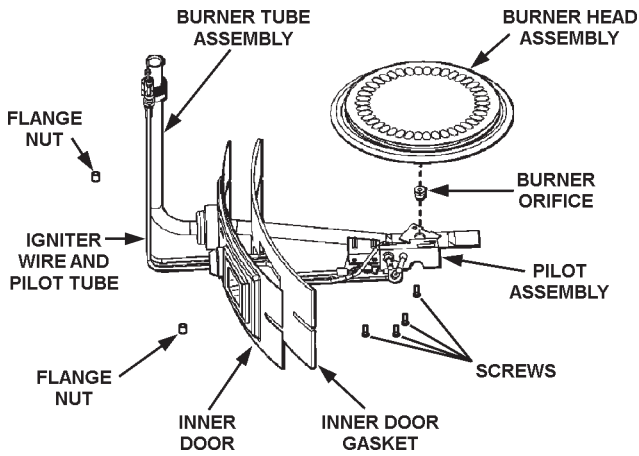


FIGURE 13.

- Loosen flare nut "T" holding thermocouple to bottom of gas valve with 3/8" open-end wrench and pull down to remove, see Figure 14.
- Loosen flare nut "P" holding pilot line to bottom of gas valve with 7/16" open-end wrench and pull tube down to remove, see Figure 14.
- Loosen flange nut "B" holding burner tube to bottom of gas valve with 3/4" open-end wrench and pull down to remove, see Figure 14.

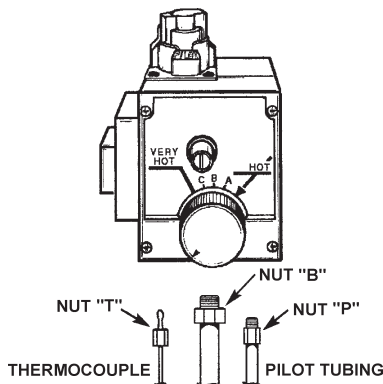


FIGURE 14.

- Grasp burner tube and remove burner assembly through inner door opening.
- To remove the natural gas pilot assembly, remove the Phillips-head screw holding the TCO bracket to the burner tube bracket, see Figure 15.

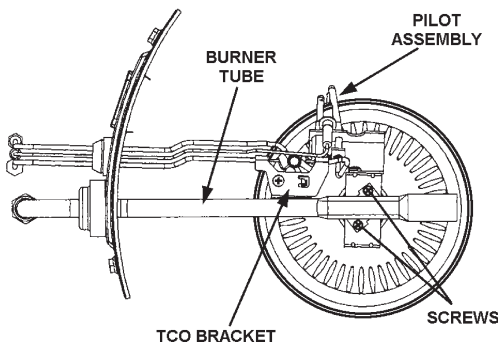


FIGURE 15.

- Remove the Phillips-head screw holding the pilot bracket to the burner head, see Figure 16.

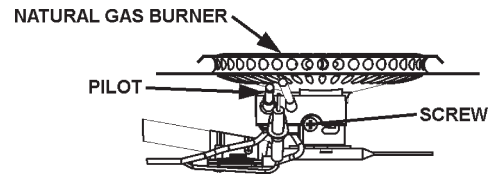


FIGURE 16.

- Remove the two Phillips-head screws holding the natural burner head to the burner tube assembly, see Figure 17.
- Using 3/8" boxed-end wrench remove the natural gas burner orifice "O" from the burner tube. Install burner orifice marked "LP" and tighten securely, see Figure 17.
- Locate and install the propane burner head to the burner tube using the two Phillips-head screws, see Figure 17.

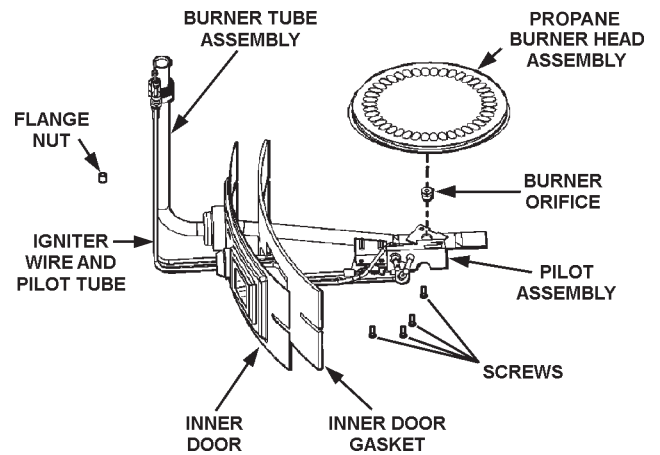


FIGURE 17.

- Push the natural gas pilot assembly grommet out of the inner door towards the combustion chamber.
- To install the propane pilot assembly, put the igniter wire, thermostat lead, and pilot tube through the inner door hole. Reinstall the Phillips-head screw securing the TCO bracket to the burner tube. Reinstall the Phillips-head screw securing the pilot assembly to the burner head bracket.
- Push the grommet into the inner door hole making sure the door fits into the groove in the grommet.
- Reinstall the burner assembly through the door opening being careful not to damage the door gasket on the studs. Position end of burner tube inside bracket as shown in Figure 18.

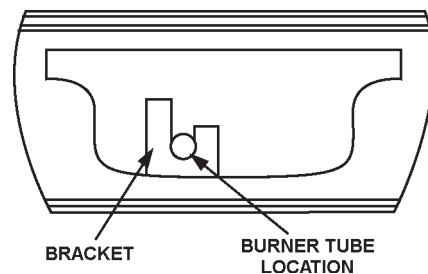


FIGURE 18.

23. Place screwdriver in slot "C", see Figure 19. Depress and turn counterclockwise (↺) to stop. Control screw must be in "IN" position for propane (LP) gas and in "OUT" position for natural gas. STOP! Read label "For Your Safety" located on your water heater.

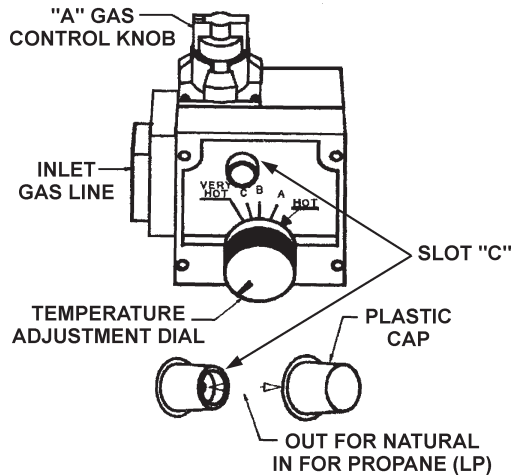
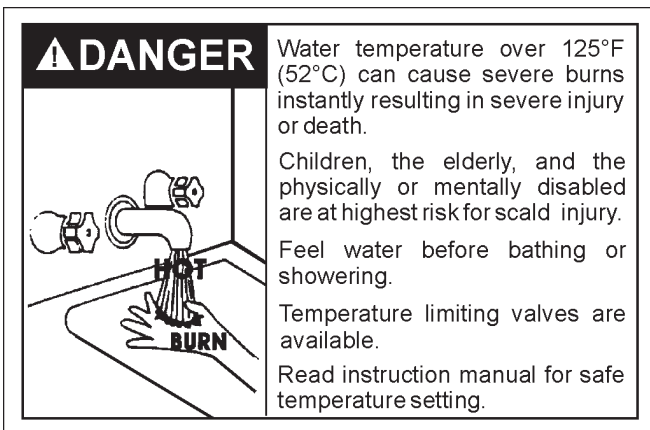


FIGURE 19.

24. Light pilot following the lighting and operating instructions on the front surface of the heater.
25. Install outer door.



### WHITE-RODGERS FUEL CONVERSION INSTRUCTIONS FROM PROPANE (L.P.) GAS TO NATURAL GAS

For conversion of Propane (LP) gas to Natural Gas follow the "White-Rodgers Fuel Conversion Instructions From Natural Gas to Propane (LP) Gas" section except in:

1. Step 14, use natural gas pilot assembly.
2. Step 16, use natural gas burner head.
3. Step 17, use burner orifice "O" marked "N".
4. Step 23, turn control screw in slot "C" in Figure 19 clockwise to stop. Screw must be in "OUT" position for Natural Gas.

See "Instruction Label" for orifice sizes.

Maximum Supply Pressure:  
10.5" W.C. for Natural Gas.  
13" W.C. for Propane (L.P.) Gas.

Minimum Supply Pressure:  
5" W.C. for Natural Gas.  
11" W.C. for Propane (L.P.) Gas.

### ROBERTSHAW FUEL CONVERSION INSTRUCTIONS FROM PROPANE (L.P.) GAS TO NATURAL GAS



Fuel conversions shall be completed by a qualified service agency in accordance with the detailed conversion instructions and all applicable codes and requirements of the authority having jurisdiction. The information in these instructions must be followed to minimize the risk of fire or explosion and to prevent property damage, personal injury or death. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the appliance is checked as specified in the manufacturer's instructions.

1. Read and follow the detailed conversion instruction below and also on the heater in their entirety before starting the conversion.
2. The conversion kit with necessary parts are in a bag attached to the side of the water heater.
3. Shut off the gas supply to the water heater.
4. Remove the outer door.
5. Rotate the thermostat dial on the water heater control clockwise (↻) until the main burner ignites and burns off all residual gas in the control and supply lines, see Figure 20.
6. Rotate the thermostat dial counterclockwise (↺) back to the "PILOT LIGHTING" position, see Figure 20.

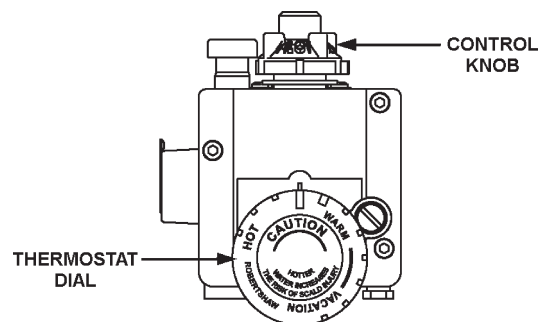


FIGURE 20.

7. Turn the gas control knob "A" clockwise to "PILOT". Depress the child safety lever and turn the control knob clockwise to "OFF" position, see Figure 21.



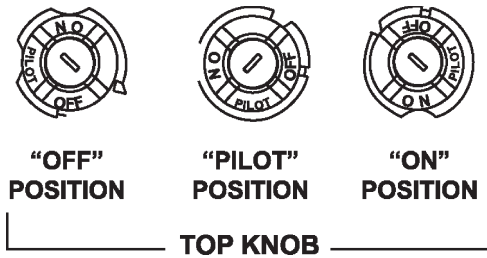


FIGURE 21.

8. Unplug wire from igniter assembly mounted on the side of the gas valve.
9. Remove flange nuts holding inner door in place with 3/8" nut driver, see Figure 22.

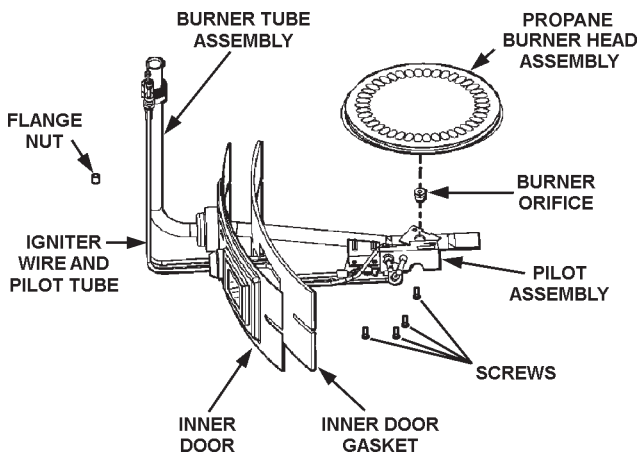


FIGURE 22.

10. Loosen flare nut "T" holding to bottom of gas valve with 3/8" open-end wrench and pull down to remove, see Figure 23.
11. Loosen flare nut "P" holding pilot line to bottom of gas valve with 7/16" open-end wrench and pull tube down to remove, see Figure 23.
12. Loosen flange nut "B" holding burner tube to bottom of gas valve with 3/4" open-end wrench and pull down to remove, see Figure 23.
13. Grasp burner tube and remove burner assembly through inner door opening.

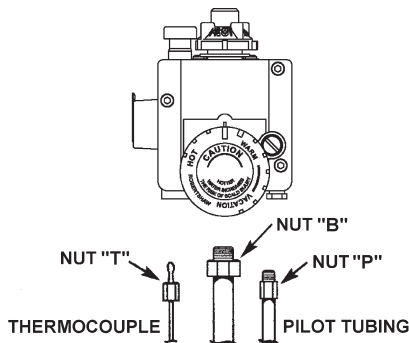


FIGURE 23.

14. To remove the propane (LP) gas pilot assembly, remove the Phillips-head screw holding the TCO bracket to the burner tube bracket, see Figure 24.

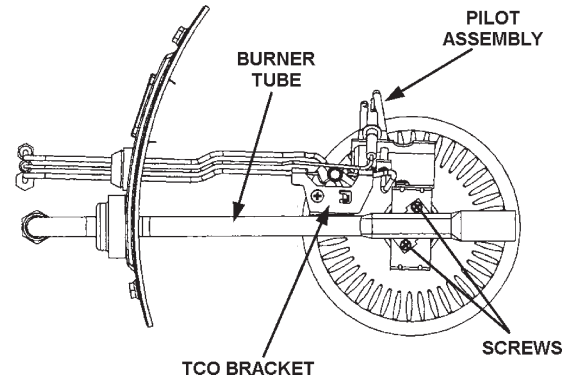


FIGURE 24.

15. Remove the Phillips-head screw holding the pilot bracket to the burner head, see Figure 25.

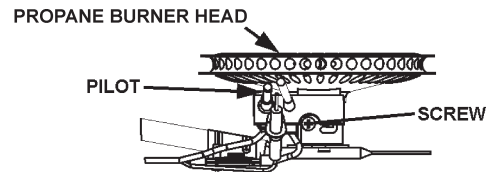


FIGURE 25.

16. Remove the two Phillips-head screws holding the propane burner head to the burner tube assembly, see Figure 26.
17. Using 3/8" boxed-end wrench remove the propane gas burner orifice "O" from the burner tube. Install the natural gas burner orifice and tighten securely, see Figure 26.
18. Locate and install the natural gas burner head to the burner tube using the two Phillips-head screws, see Figure 26.

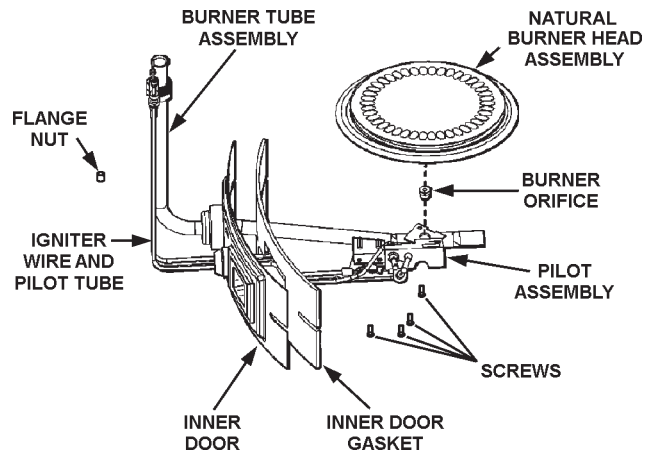


FIGURE 26.

19. Push the propane gas pilot assembly grommet out of the inner door towards the combustion chamber.
20. To install the natural gas pilot assembly, pull the igniter wire, thermostat lead, and pilot tube through the inner door hole. Reinstall the Phillips-head screw securing the TCO bracket to the burner tube. Reinstall the Phillips-head screw securing the pilot assembly to the burner head bracket.
21. Push the grommet into the inner door hole making sure the door fits into the groove in the grommet.
22. Reinstall the burner assembly through the door opening being careful not to damage the door gasket on the studs. Position end of burner tube inside bracket as shown in Figure 27.

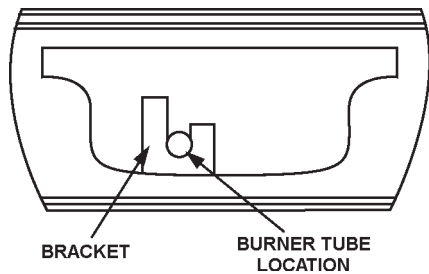


FIGURE 27.

23. Reinstall and tighten flange nut "B" on burner tube securely. Reinstall and tighten flare nut "P" on pilot line securely. Reinstall and tighten flare nut "T" on thermocouple securely. Reinstall two flange nuts on inner door. Plug wire from combustion chamber into igniter assembly located on the side of the gas valve. Make sure burner tube boot is on flange on inner door and pilot assembly grommet is secure in the hole in the inner door.
24. Remove the conversion cap on the control knob, see Figure 28. Place screwdriver in slot "C", depress and turn control screw to "LP" position. Control screw must be in "LP" position for propane (LP) gas and in "NAT" position for natural gas. Pilot screw must be switched to natural position when converting to natural gas. STOP! Read label "For Your Safety" located on your water heater.

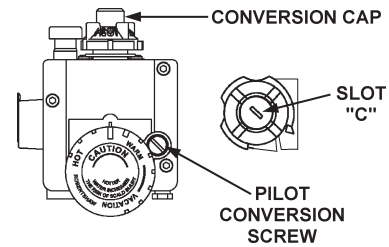


FIGURE 28.

25. Light pilot following the lighting and operating instructions on the front surface of the heater.
26. Install the outer door.

	<b>⚠ DANGER</b>
	<p>Water temperature over 125°F (52°C) can cause severe burns instantly resulting in severe injury or death.</p> <p>Children, the elderly, and the physically or mentally disabled are at highest risk for scald injury.</p> <p>Feel water before bathing or showering.</p> <p>Temperature limiting valves are available.</p> <p>Read instruction manual for safe temperature setting.</p>

### ROBERTSHAW FUEL CONVERSION INSTRUCTIONS FROM NATURAL GAS TO PROPANE (L.P.) GAS

To convert from Natural Gas follow the "RobertShaw Fuel Conversion Instructions from Propane (LP) Gas to Natural Gas" section except in:

1. Step 14, use natural gas pilot assembly.
2. Step 16, use natural gas burner head.
3. Step 17, use burner orifice "O" marked "N".
4. Step 24, turn control screw in slot "C", depress and turn screw to "LP" position. Pilot screw must be switched to LP position when converting to LP gas.

# WHITE-RODGERS GAS VALVE

## FOR YOUR SAFETY READ BEFORE LIGHTING



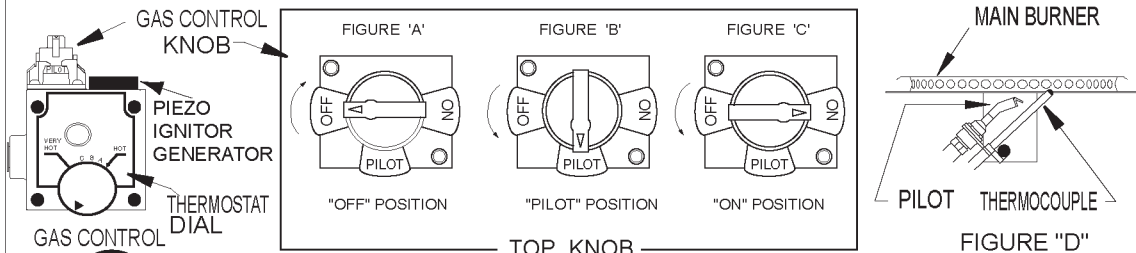
**WARNING:** If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.



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

- A. This appliance has a pilot which is lit by a piezo-electric spark gas ignition system. Do not open the inner door of the appliance and try to light the pilot by hand.
- 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 contact a qualified installer or service agency to replace a flooded water heater. Do not attempt to repair the unit! It must be replaced!

## LIGHTING INSTRUCTIONS



1. **STOP!** Read the safety information above on this label.
2. Set the thermostat to lowest setting. Turn thermostat dial fully clockwise until it stops.
3. Push the gas control knob down slightly and turn clockwise to "OFF". SEE FIGURE 'A'. NOTE: Knob cannot be turned from "PILOT" to "OFF" unless knob is pushed down slightly. Do not force.
4. Remove the outer burner door located below the gas control.
5. 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 next step.
6. This unit is equipped with a push button pilot ignitor, which is used to light the pilot. Locate the ignitor on the gas control.
7. Turn gas control knob counterclockwise to "PILOT". SEE FIGURE 'B'.
8. The pilot is located on the right side of the burner. It can be located by looking through the glass view port while pressing the piezo ignitor button several times. Look for a spark at the pilot location, Figure "D".
9. Once the pilot has been found, push the gas knob all the way down. Immediately press the pilot ignitor button rapidly (4) to (5) times. If the pilot will not light, repeat step (3) through (9).
10. Continue to hold the gas control knob down for about one (1) minute after the pilot is lit. Release the gas control knob and it will pop back up. Pilot should remain lit. If it goes out, repeat step (3) through (9). It may take several minutes for air to clear the lines before the pilot will light.
  - 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, turn the gas control knob clockwise to "OFF" and call your service technician or gas supplier. SEE FIGURE 'A'
11. Once the pilot flame is established replace the outer burner door.
12. At arm's length away, turn gas control knob counterclockwise to "ON". SEE FIGURE 'C'.
13. Set thermostat to desired setting.



**DANGER: Hotter water increases the risk of scald injury. Consult the instruction manual before changing temperature.**

## TO TURN OFF GAS TO APPLIANCE

1. Turn the thermostat dial to lowest setting (PILOT LIGHTING).
2. Push gas control knob down slightly and turn clockwise to "OFF". Do not force. SEE FIGURE 'A'.

# ROBERTSHAW GAS VALVE

## FOR YOUR SAFETY READ BEFORE LIGHTING



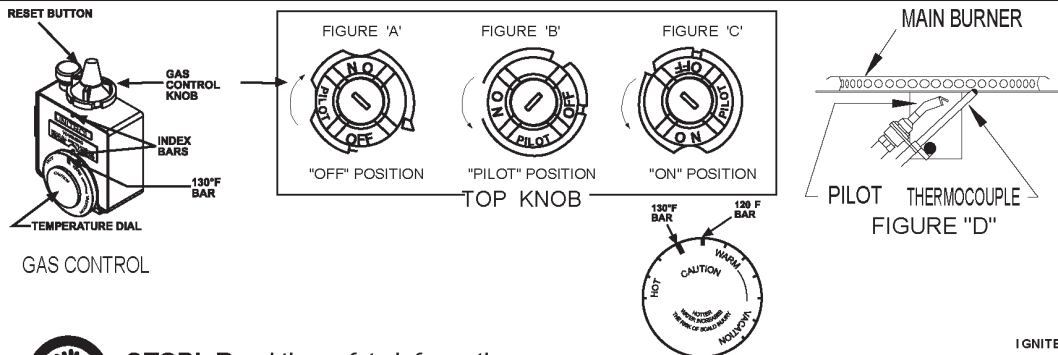
**WARNING:** If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.



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

- A. This appliance has a pilot which is lit by a piezo-electric igniter. Do not open the inner door of the appliance and try to light the pilot by hand. 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 contact a qualified installer or service agency to replace a flooded water heater. Do not attempt to repair the unit! It must be replaced!

## LIGHTING INSTRUCTIONS



- STOP!** Read the safety information above on this label.
  - Set the thermostat to lowest setting. Turn thermostat dial fully counterclockwise until it stops.
  - Turn gas control knob clockwise to "OFF". SEE FIGURE "A".
  - Remove the outer burner door located below the gas control.
  - 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 next step.
  - This unit is equipped with a push button pilot igniter, which is used to light the pilot. Locate the igniter on the gas control of the unit.
  - Turn gas control knob counterclockwise to "PILOT". SEE FIGURE "B".
  - The pilot is located on the right side of the burner. It can be located by looking through the glass view port while pressing the piezo igniter button several times. Look for a spark at the pilot location, Figure "D".
  - Once the pilot has been found, depress the reset button all the way in and immediately depress the igniter button (4) to (5) times. Do not release the reset button. If the pilot will not light, repeat Step (3) through (5).
  - Continue to hold the reset button down for about one (1) minute after the pilot is lit. Release the reset button and it will pop back up. Pilot should remain lit. If it goes out, repeat step (3) through (9). It may take several minutes for air to clear the lines before the pilot will light.
    - If reset button 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 the child safety lever and turn the gas control knob clockwise to "OFF". SEE FIGURE "A". Call your service technician or gas supplier.
  - Once the pilot flame is established replace the outer burner door.
  - At arm's length away, turn gas control knob counterclockwise to "ON". SEE FIGURE "C".
  - Set thermostat to desired setting.
- DANGER!** Hotter water increases the risk of scald injury. Consult the instruction manual before changing temperature.

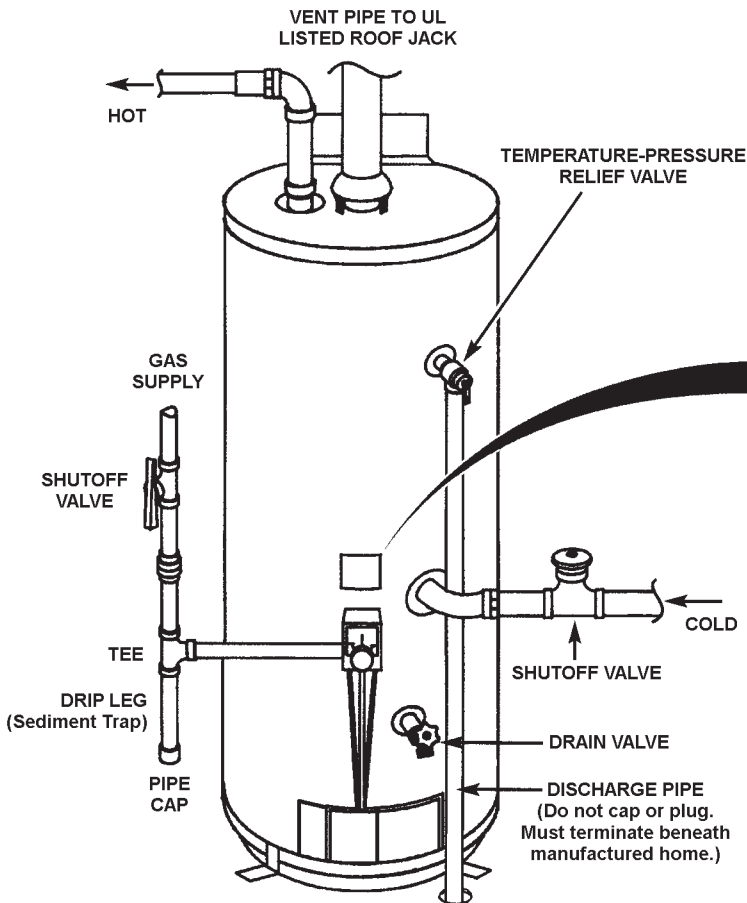
## TO TURN OFF GAS TO APPLIANCE

- Turn the thermostat dial counterclockwise to lowest setting.
- Turn gas control knob clockwise to the "OFF" position.

# INSTALLATION CHECKLIST

## BEFORE LIGHTING THE PILOT:

1. Check the gas lines 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 leak. Turn "OFF" gas and make the necessary repairs.
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 the "Locating the New Water Heater" section.
8. Is the draft hood 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 on 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

AUTOMATIC STORAGE WATER HEATER FOR INSTALLATION IN A MANUFACTURED HOME							
MODEL NUMBER		SERIAL NUMBER		ITEM ID			
TYPE OF GAS EQUIPPED FOR		INPUT BTU/HR	INPUT BTU/HR IF CONVERTED TO PROPANE	ORIFICE SIZE			
				NATURAL	PROPANE		
GAS PRESSURES IN W.C.		MAX WORKING PRESSURE P.S.I.		BUILD DATE		CITY OF NEW YORK DEPT OF BUILDINGS MEA	
MANFOLD	MAX INLET	MIN INLET					

\*For 30 and 40 Gallon heater as shown.

For 30 Gallon heater:  
**ORIFICE SIZE: #36 FOR NATURAL / #52 FOR LP  
 IF CONVERTED - PROPANE RATE 32,000 BTU**

For 40 Gallon heater:  
**ORIFICE SIZE: #36 FOR NATURAL / #51 FOR LP  
 IF CONVERTED - PROPANE RATE 35,500 BTU**

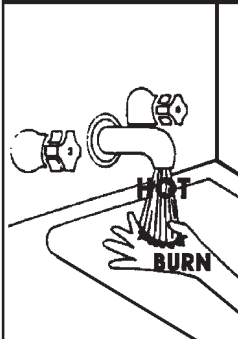
For 50 Gallon heater:  
**ORIFICE SIZE: #33 FOR NATURAL / #50 FOR LP  
 IF CONVERTED - PROPANE RATE 37,000 BTU**

# TEMPERATURE REGULATION

Short repeated heating cycles caused by small hot water uses can cause temperatures at the point of use to exceed the thermostat setting by up to 30°F (16.7°C). If you experience this type of use you should consider using lower temperature settings to reduce scald hazards.

For the Robertshaw control, turn the water temperature dial counterclockwise (↺) to decrease the temperature, or clockwise (↻) to increase the temperature.

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



**⚠ DANGER** Water temperature over 125°F (52°C) can cause severe burns instantly resulting in severe injury or death.

Children, the elderly, and the physically or mentally disabled are at highest risk for scald injury.

Feel water before bathing or showering.

Temperature limiting valves are available.

Read instruction manual for safe temperature setting.

**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, 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, see Figure 2. Follow manufacturer's instructions for installation of the valves. Before changing the factory setting on the thermostat, see Figures 29 and 30. Using the lowest hot water temperature that meets your needs will also provide the most energy efficient operation of the water heater.

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.

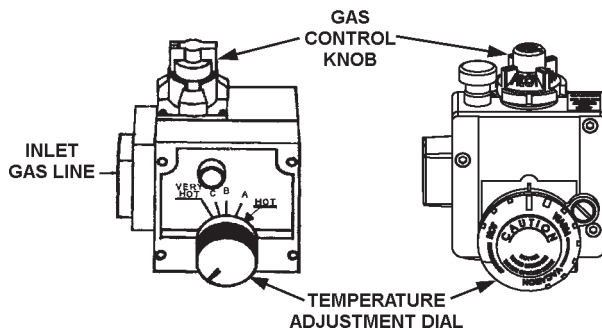
**NOTE:** A water temperature range of 120°F-140°F (49°C-60°C) is recommended by most dishwasher manufacturers.

The thermostat of this water heater has been factory set at its lowest position. It is adjustable and must be reset to the desired temperature setting to reduce the risk of scald injury. The mark (▼) indicative of approximately 120°F (49°C) is the preferred starting point for the White-Rodgers control. The 120°F Bar indicative of approximately 120°F as shown in Figure 29 is the preferred starting point for the Robertshaw control. Some States have a requirement for a lower setting.

For the White-Rodgers control, turn the water temperature dial clockwise (↻) to decrease the temperature, or counterclockwise (↺) to increase the temperature.

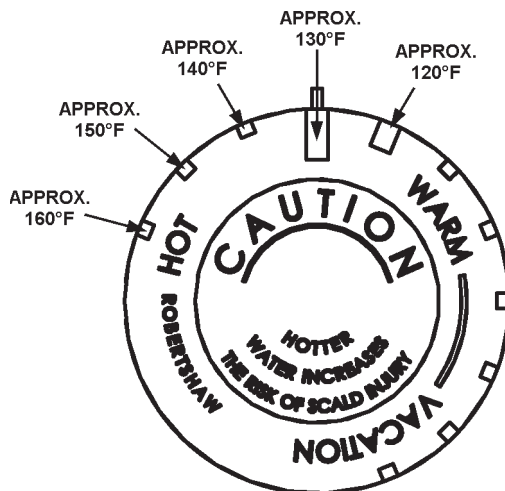
**WHITE-RODGERS**

**ROBERTSHAW**



**FIGURE 29.**

**ROBERTSHAW TEMPERATURE ADJUSTMENT DIAL**



**FIGURE 30.**

Temperature Setting	Time to Produce 2nd and 3rd Degree Burns on Adult Skin
VERY HOT = approx. 160° (71°C)	About 1/2 second
C = approx. 150°F (66°C)	About 1-1/2 seconds
B = approx. 140°F (60°C)	Less than 5 seconds
A = approx. 130°F (54°C)	About 30 seconds
▲ = approx. 120°F (49°C)	More than 5 minutes
Lowest Setting = approx. 80°F (27°C)	-----

# FOR YOUR INFORMATION

## START UP CONDITIONS

---

### DRAFT HOOD OPERATION

Check draft hood operation by performing a worst case depressurization of the building. With all doors and windows closed, and with all air handling equipment and exhaust fans operating such as furnaces, clothes dryers, range hoods and bathroom fans, a match flame should still be drawn into the draft hood of the water heater with its burner firing. If the flame is not drawn toward the draft hood, shut off water heater and make necessary air supply changes to correct.

### CONDENSATE

Whenever the water heater is filled with cold water, some condensate 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 new water heater is filled with cold water for the first time.
- Burning gas produces water vapor in water heaters, particularly high efficiency models where flue temperatures are lower.
- Large amounts of hot water are used in a short time and the refill water in the tank 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

<b>CAUTION</b>	
<b>Property Damage Hazard</b>	
<ul style="list-style-type: none"><li>• Avoid water heater damage.</li><li>• Install thermal expansion tank or device if necessary.</li><li>• Contact qualified installer or service agency.</li></ul>	

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 or device 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 heater supplier or service agency 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 necessarily represent harmful or dangerous conditions.

Condensation causes sizzling and popping within 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 sections) 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” in the hot water. 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 concentration of sulfate in the supply water.
- Little or no dissolved oxygen in the water.
- A sulfate reducing bacteria which has accumulated within the water heater (this harmless bacteria is nontoxic to humans).
- An excess of active hydrogen in the tank. This is caused by the corrosion protective action of the anode.

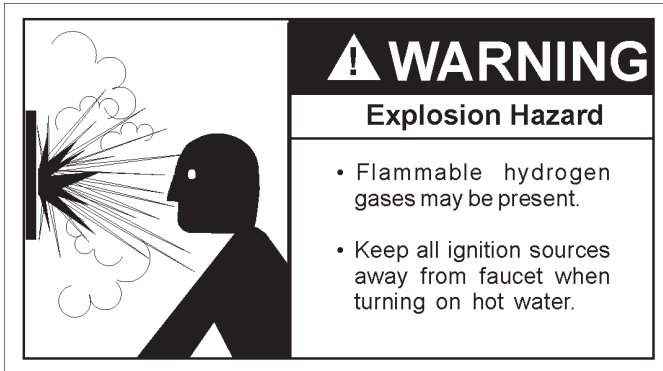
Smelly water may be eliminated or reduced in some water heater models by replacing the anode(s) with one of less active material, and then chlorinating the water heater tank and all hot water lines. Contact

the local water heater supplier or service agency for further information concerning an Anode Replacement Kit and this chlorination treatment.

If the smelly water persists after the anode replacement and chlorination treatment, we can only suggest that chlorination or aeration of the water supply 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.**

#### **“AIR” IN HOT WATER FAUCETS**



**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, located farthest away, be opened for several minutes 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.

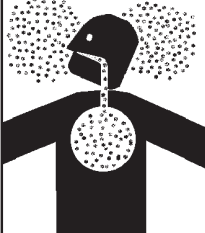
#### **HIGH WATER TEMPERATURE SHUT OFF SYSTEM**

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 your gas supplier or service agency.



# PERIODIC MAINTENANCE

## VENTING SYSTEM INSPECTION

<b>⚠ WARNING</b>	
<b>Breathing Hazard - Carbon Monoxide Gas</b>	
	<ul style="list-style-type: none"><li>• Flue gases may escape if vent pipe is not connected.</li><li>• Be alert for obstructed, sooted or deteriorated vent system to avoid serious injury or death.</li><li>• Do not store corrosive chemicals in vicinity of water heater.</li><li>• Chemical corrosion of flue and vent system can cause serious injury or death.</li></ul>
Breathing carbon monoxide can cause brain damage or death. Always read and understand instruction manual.	

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.

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

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

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.

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

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 installer or service agency 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, see Figure 31.

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

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 injury, or property damage.

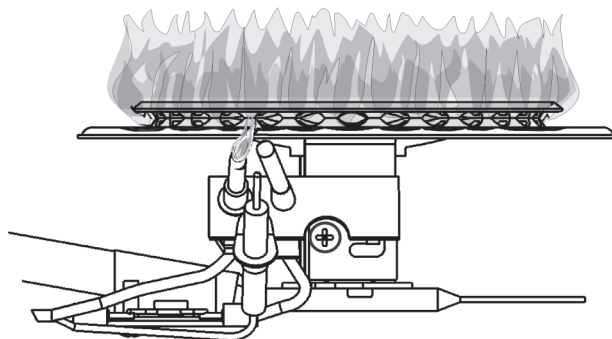


FIGURE 31.

## BURNER CLEANING

In the event your burner needs cleaning, follow these 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.**

The burner needs to be removed for cleaning. Call a service agency to remove and clean the burner and correct the problem that required the burner to be cleaned.

## HOUSEKEEPING

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

<b>⚠ DANGER</b>	
<b>Fire and Explosion Hazard</b>	
	<ul style="list-style-type: none"><li>• Do not obstruct combustion air openings at the bottom of the water heater.</li><li>• Do not use or store flammable vapor products such as gasoline, solvents or adhesives in the same room or area near water heater or other appliance.</li><li>• Visible inspect air intake screen at least once every six months and clean if accumulated lint.</li><li>• Can cause serious injury or death.</li></ul>

**AT LEAST ONCE EVERY SIX MONTHS A VISUAL INSPECTION SHOULD BE MADE OF THE AIR INTAKE SCREEN. CLEAN IF LINT ACCUMULATIONS ARE NOTICED.**

## ANODE ROD INSPECTION

### CAUTION

#### Property Damage Hazard

- Avoid water heater damage.
- Inspection and replacement of anode rod required.

Each water heater contains at least one anode rod, which will slowly deplete while protecting the glass-lined tank from corrosion and prolonging the life of the water heater. Once the anode is depleted, the tank will start to corrode, eventually developing a leak. Certain water conditions will cause a reaction between this rod and the water. The most common complaint associated with the anode rod is a "rotten egg smell" produced from the presence of hydrogen sulfide gas dissolved in the water. **IMPORTANT:** Do not remove this rod permanently as it will void any warranties. The parts list includes a special anode that can be ordered if water odor or discoloration occurs. **NOTE:** This rod may reduce but not eliminate water odor problems. The water supply system may require special aeration or chlorination equipment from a water conditioning company to successfully eliminate all water odor problems.

The use of a water softener may decrease the life of the water heater tank. The anode rod should be removed from the water heater tank every 3 years for inspection. The following are typical (but not all) signs of a depleted anode rod:

- The majority of the rod's diameter is less than 3/8".
- Significant sections of the support wire (approx. 1/3 or more of the anode rod's length) are visible.

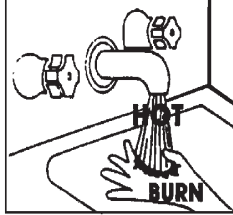
If the anode rod show signs of either or both it should be replaced. **NOTE:** Whether re-installing or replacing the anode rod, check for any leaks and immediately correct if found. In situations where clearance above the water heater is limited it may be necessary to bend the anode rod for removal. Flexible anode rods are available for replacement.

In replacing the anode:

1. Turn off gas supply to the water heater.
2. Shut off the water supply and open a nearby hot water faucet to depressurize the water tank.
3. Drain approximately 5 gallons of water from tank (Refer to the "Draining and Flushing" section for proper procedures). Close drain valve.
4. Remove old anode rod.
5. Use Teflon® tape or approved pipe sealant on threads and install new anode rod.
6. Turn on water supply and open nearby hot water faucet to purge air from water system. Check for any leaks and immediately correct any if found.
7. Restart the water heater as directed under the "Operating Your Water Heater" section. See the "Repair Parts Illustration" section for anode rod location.

## TEMPERATURE-PRESSURE RELIEF VALVE OPERATION

### ⚠ DANGER



- Burn hazard
- Hot water discharge.
- Keep clear of relief valve discharge outlet.

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

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 discharge will not cause any property damage, as the water may be extremely hot, see Figure 32.

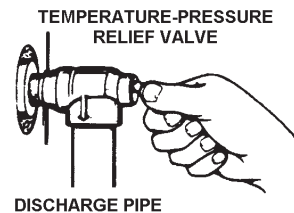


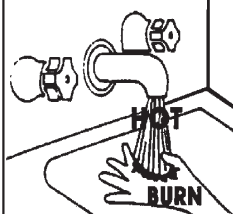
FIGURE 32.

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.

If the temperature-pressure relief valve on the appliance weeps or discharges periodically, this may be due to thermal expansion. You may have a check valve installed in the water line or a water meter with a check valve. Consult your local water supplier or service agency for further information. Do not plug the temperature-pressure relief valve.

## DRAINING

### ⚠ DANGER



- Burn hazard
- Hot water discharge.
- Keep hands clear of drain valve discharge.

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.

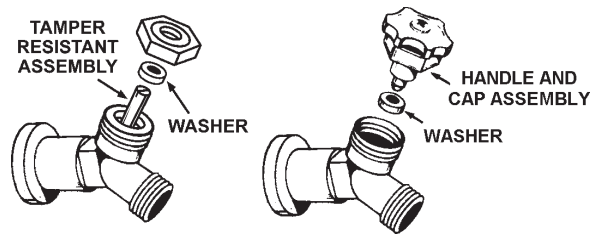
6. CLOSE the drain valve.
7. Follow instructions in the "Filling The Water Heater" section.
8. Follow the lighting instructions on the label or see page 14 under "Lighting Instructions" to restart the water heater.

### **DRAIN VALVE WASHER REPLACEMENT**

(See Figure 33)

1. Follow "Draining" instructions.
2. Turning counterclockwise (↺), remove the hex cap below the screw handle.
3. Remove the washer and put the new one in place.

4. Screw the handle and cap assembly back into the drain valve and retighten using a wrench. DO NOT OVER TIGHTEN.
5. Follow instructions in the "Filling The Water Heater" section.
6. Check for leaks.



**FIGURE 33.**

### **SERVICE**

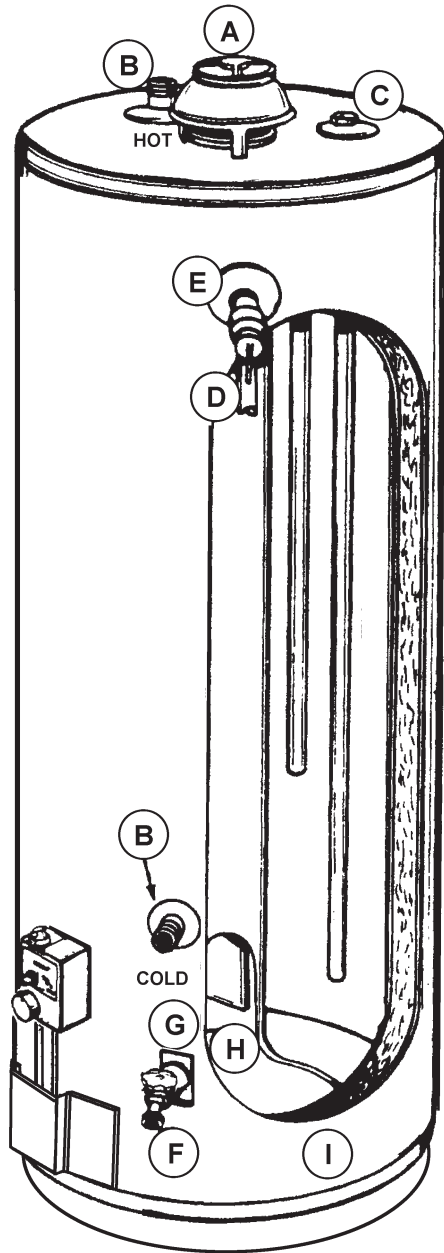
If a condition persists or you are uncertain about the operation of the water heater contact a service agency.

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 your gas supplier or qualified installer to check the water heater.

# LEAKAGE CHECKPOINTS

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.



- A. Water at the draft hood 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 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 being slightly opened.
- 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 onto the burner or run on the floor. This is common at the time of start-up 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.

## ⚠ WARNING

Read and understand instruction manual and safety messages before installing, operating or servicing this water heater.

Failure to follow instructions and safety messages could result in death or serious injury.

Instruction Manual must remain with water heater.



# 30 & 40 GALLON REPAIR PARTS LIST

Key No.	Part Description
*1	Burner Assembly (White-Rodgers)**
	Burner Assembly (RobertShaw)**
*2	Burner Head (Natural Gas)
	Burner Head (Propane Gas)
*3	Burner Orifice (Natural Gas)
	Burner Orifice (Propane Gas)
4	Burner Tube (White-Rodgers)**
	Burner Tube (RobertShaw)**
*5	Pilot Assembly (Natural Gas)
	Pilot Assembly (Propane Gas)
*6	Inner Door
7	Inner Door Gasket
8	Flue Baffle
9	Flue Restrictor
10	Draft Hood
11	Gas Control Valve (White-Rodgers)**
	Gas Control Valve (RobertShaw)**
12	Piezo Ignitor Generator (White-Rodgers)**
	Piezo Ignitor Generator (RobertShaw)**
13	Piezo Ignitor Bracket (White-Rodgers)**
	Piezo Ignitor Bracket (RobertShaw)**
14	Air Intake Screen
15	Nipple Inlet Tube
16	Heat Trap Nipple
17	Viewport Assembly
18	Temperature-Pressure Relief Valve
19	Drain Valve
20	Drain Valve Washer (17/32"x13/64"x1/8" thick)
21	Outer Door
22	Anode Rod
23	Angle Brackets
24	White-Rodgers Thermostat Shield (optional)
***25	Instruction Manual

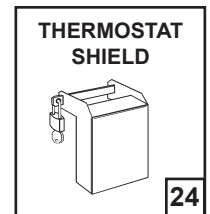
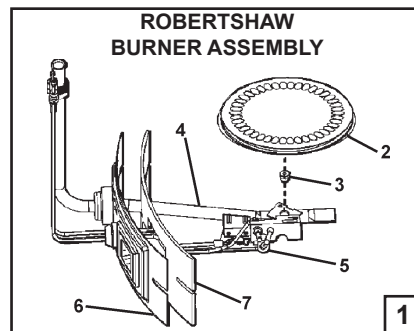
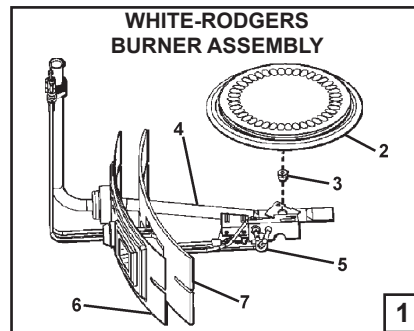
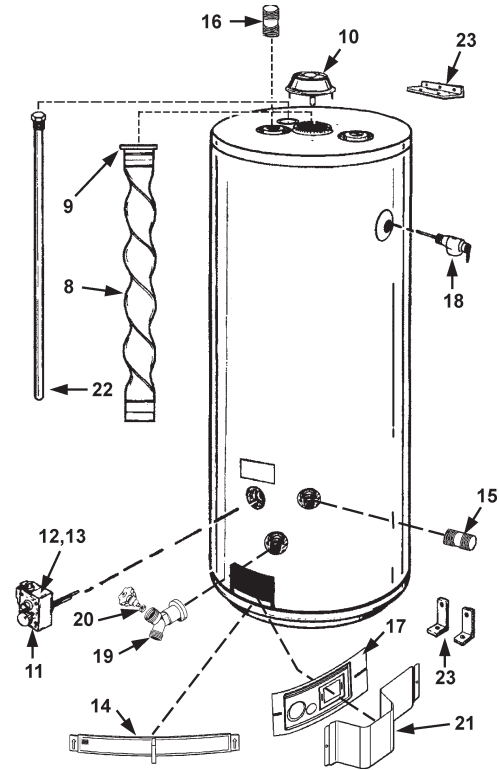
- \* Door Gasket supplied with these parts
- \*\* White-Rodgers & RobertShaw parts are not interchangeable.
- \*\*\* Not Shown.

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 Gas Water Heater will be found on the rating place located above the gas control valve.



WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

- MODEL NUMBER
- TYPE GAS (NATURAL OR PROPANE (L.P.))
- SERIAL NUMBER
- PART DESCRIPTION

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

# 50 GALLON REPAIR PARTS LIST

Key No.	Part Description
*1	Burner Assembly (White-Rodgers)**
	Burner Assembly (RobertShaw)**
*2	Burner Head (Natural Gas)
	Burner Head (Propane Gas)
*3	Burner Orifice (Natural Gas)
	Burner Orifice (Propane Gas)
4	Burner Tube (White-Rodgers)**
	Burner Tube (RobertShaw)**
*5	Pilot Assembly (Natural Gas)
	Pilot Assembly (Propane Gas)
*6	Inner Door
7	Inner Door Gasket
8	Flue Baffle
9	Flue Restrictor
10	Draft Hood
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	Piezo Ignitor Generator (RobertShaw)**
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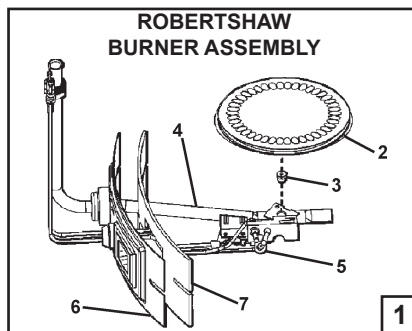
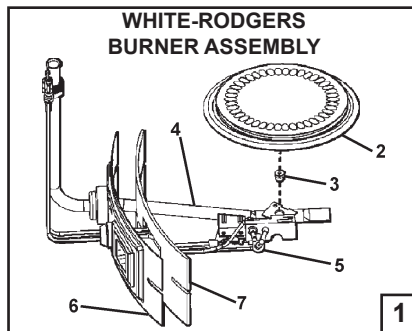
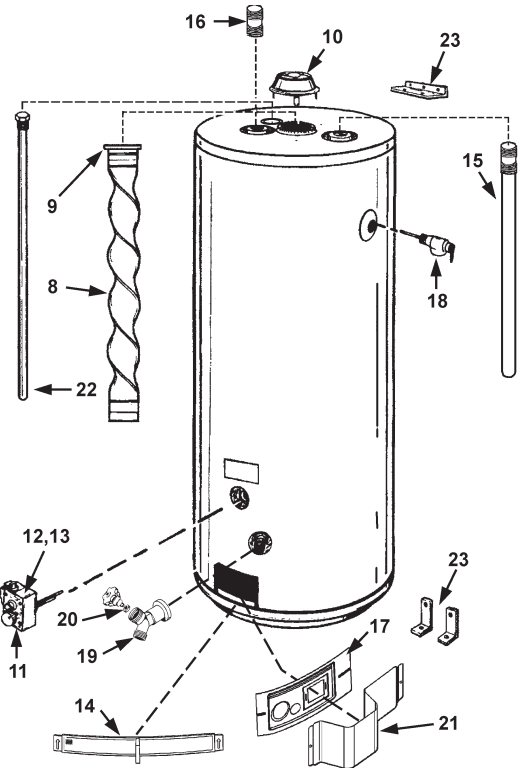
- \* Door Gasket supplied with these parts  
 \*\* White-Rodgers & RobertShaw parts are not interchangeable.  
 \*\*\* Not Shown.

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.**

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WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

- MODEL NUMBER
- TYPE GAS (NATURAL OR PROPANE (L.P.))
- SERIAL NUMBER
- PART DESCRIPTION

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

# TROUBLESHOOTING GUIDELINES

These guidelines should be utilized by a qualified service agent. When calling for service notify the service agent that this is a "Flammable Vapor Ignition Resistant" Product.

Problem	Cause	Solution
<b>WATER LEAKS</b>	Improperly sealed, hot or cold supply connection, relief valve, drain valve, or thermostat threads.	Tighten threaded connections.
	Leakage from other appliances or water lines.	Inspect other appliances near water heater.
	Condensation of flue products.	Refer to CONDENSATE.
<b>LEAKING T&amp;P VALVE</b>	Thermal expansion in closed water system.	Install thermal expansion tank (DO NOT plug T&P valve).
	Improperly seated valves.	Check relief valve for proper operation (DO NOT plug T&P valve).
<b>SMEILY ODORS</b>	High sulfate or mineral content in water supply.	Drain and flush heater thoroughly, then refill.
	Bacteria in water supply.	Chlorinate or aerate water supply.
<b>PILOT WILL NOT LIGHT</b>	Gas control knob not positioned correctly.	Refer to LIGHTING INSTRUCTIONS.
	Main gas supply off.	Turn on main gas Shut-off valve.
	Igniter tip more than 1/8" from pilot hood.	Adjust ignitor tip.
	Thermocouple malfunction.	Replace pilot assembly.
	Thermocouple TCO malfunction.	Replace pilot assembly.
	Melted insulation on ignitor wire or shorting of ignitor wire.	Contact a service agency to determine cause.
	High ambient room temperature.	Contact a service agency to determine cause.
	Wire disconnected from spark ignitor.	Reconnect wire connector to spark ignitor.
	Broken electrode or electrical wire.	Replace pilot assembly.
	Piezo ignitor generator fails to operate or malfunctions.	Replace Piezo ignitor generator.
<b>BURNER WILL NOT STAY LIT</b>	Thermocouple TCO malfunction.	Replace pilot assembly.
	High ambient room temperature.	Contact a service agency to determine cause.
	Dirty or clogged air intake screen.	Clean and reinstall air intake screen.
	Flame arrestor openings blocked.	Contact a service agency to determine cause.
	Defective Gas Control.	Replace gas control.
<b>PILOT OUTAGE</b>	Dirty pilot burner.	Clean pilot assembly.
	Dirty or clogged air intake screen.	Clean and reinstall air intake screen.
	Thermocouple tip is not in contact with pilot flame.	Insert thermocouple correctly.
	Thermocouple malfunction.	Replace pilot assembly.
	Thermocouple TCO malfunction.	Replace pilot assembly.
	Defective Gas control.	Replace Gas Control.
<b>NOT ENOUGH HOT WATER</b>	Heater not lit or thermostat not on.	Refer to LIGHTING INSTRUCTIONS.
	Thermostat set too low.	Refer to TEMPERATURE REGULATION.
	Heater undersized.	Reduce hot water use.
	Low gas pressure.	Contact your gas supplier.
	Incoming water is unusually cold.	Allow more time for heater to re-heat.
	Leaking hot water pipes or fixtures.	Have plumber check and repair leaks.
	High temperature limit switch activated.	Contact a service agency to determine cause.
<b>WATER TOO HOT</b>	Thermostat set too high.	Refer to TEMPERATURE REGULATION.
<b>WATER HEATER SOUNDS</b>	Condensation dripping on burner.	Refer to CONDENSATE above.
<b>SIZZLING-RUMBLING</b>	Sediment or calcium in bottom of heater tank.	Clean sediment from tank. Refer to DRAINING instructions in Maintenance section of manual.
<b>SOOTING</b>	Improper combustion.	No adjustment available. Immediately shut down the water heater and contact a service agency to determine cause.
<b>VENT GAS ODORS</b>	Lack of supply air.	Immediately shut down the water heater and contact a service agency to determine cause.
	Improperly installed vent piping.	
	Downdraft.	
	Poor combustion.	

