

# INSTALLATION & SERVICE MANUAL

## ELECTRIC WATER HEATER

THE WARRANTY ON THIS WATER HEATER IS IN EFFECT ONLY WHEN THE WATER HEATER IS INSTALLED AND OPERATED IN ACCORDANCE WITH LOCAL CODES AND THESE INSTRUCTIONS. THE MANUFACTURER OF THIS HEATER WILL NOT BE LIABLE FOR ANY DAMAGE RESULTING FROM FAILURE TO COMPLY WITH THESE INSTRUCTIONS. READ THESE INSTRUCTIONS THOROUGHLY BEFORE STARTING.

*For your family's comfort, safety and convenience, it is recommend this water heater be installed and serviced by a plumbing professional.*

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### GENERAL INFORMATION

This electric water heater's design is certified by Underwriters Laboratories (UL) and listed in accordance with UL 174. C-UL listed in accordance with Canadian National Standard C22.2, No. 110-M90.

This water heater must be installed in accordance with local codes. In the absence of local codes, install this water heater in accordance with the N.E.C. Reference Book (latest edition).

The warranty for this water heater is in effect only when the water heater is installed, adjusted, and operated in accordance with these Installation and Operating Instructions. The manufacturer will not be held liable for damage resulting from alteration and/or failure to comply with these instructions.

This water heater is design certified for installation in a mobile home.

This water heater has been designed and certified for the purpose of heating potable water. The installation and use of this water heater for any purpose other than the heating of potable water, may cause damage to the water heater and create a hazardous condition and nullify the warranty.

#### ▲ CAUTION

**Incorrect operation of this appliance may create a hazard to life and property and will nullify the warranty.**

Do not use this appliance if any part has been submerged in water. The plumbing professional responsible for the installation of this water heater should be contacted to inspect the appliance and to replace any part of the control system, including thermostat, which has been submerged in water.

Make sure that the rating plate on the water heater is referenced for certainty that the correct voltage is being supplied to the water heater.

#### ▲ DANGER

**Do not store or use gasoline or other flammable, combustible, or corrosive vapors and liquids in the vicinity of this or any other appliance.**

A sacrificial anode is used to extend tank life. Removal of this anode, for any reason, will nullify the warranty. In areas where water is unusually active, an odor may occur at the hot water faucet due to a reaction between the sacrificial anode and impurities in the water. If this should happen, an alternative anode may be purchased from the supplier that installed this water heater. This will minimize the odor while protecting the tank. Additionally, the water heater should be flushed with appropriate dissolvers to eliminate any bacteria.

#### IMPORTANT

Before proceeding, please inspect the water heater and components for possible damage. **DO NOT** install any damaged components. If damage is evident then please contact the supplier where the water heater was purchased or the manufacturer listed on the rating plate for replacement parts.

### INSTALLATION

#### Locating The Water Heater

#### ▲ WARNING

Water heaters are heat producing appliances. To avoid damage or injury there shall be no materials stored against the water heater or vent-air intake system and proper care shall be taken to avoid unnecessary contact (especially by children) with the water heater. **UNDER NO CIRCUMSTANCES SHALL FLAMMABLE MATERIALS, SUCH AS GASOLINE OR PAINT THINNER BE USED OR STORED IN THE VICINITY OF THIS WATER HEATER OR IN ANY LOCATION FROM WHICH FUMES COULD REACH THE WATER HEATER.**

**This water heater shall NOT be installed in any location where gasoline or flammable vapors are likely to be present, unless the installation is such to eliminate the probable ignition of gasoline or flammable vapors.**

The location this water heater is to be installed is of utmost importance. Before installing this water heater, consult the installation section of these instructions. After reading these installation and operating instructions, select a location for the water heater where the floor is level and is easily accessible to a power supply and water connections. It is recommended that the water heater be located near the center of greatest hot water usage to prevent heat loss through the pipes. **DO NOT locate the water heater where water lines could be subjected to freezing temperatures. Locate the water heater so that access panels and drain valves are accessible.**

Water heater corrosion and component failure can be caused by the heating and breakdown of airborne chemical vapors. Examples of some typical compounds that are potentially corrosive are: spray can propellants, cleaning solvents, refrigerator and air conditioning refrigerants, swimming pool chemicals, calcium or sodium chloride, waxes and process chemicals. These materials are corrosive at very low concentration levels with little or no odor to reveal their presence. **NOTE: DAMAGE TO THE WATER HEATER CAUSED BY EXPOSURE TO CORROSIVE VAPORS IS NOT COVERED BY THE WARRANTY. DO NOT OPERATE THE WATER HEATER IF EXPOSURE HAS OR WILL OCCUR. DO NOT STORE ANY POTENTIALLY CORROSIVE COMPOUNDS IN THE VICINITY OF THE WATER HEATER.**

This water heater must be located in an area where leakage of the tank or water line connections and the combination temperature and pressure relief valve will not result in damage to the area adjacent to the water heater or to lower floors of the structure. When such locations cannot be avoided, a suitable drain pan must be installed under the water heater. The drain pan must be no greater than 1-1/2 in. (3.8 cm) deep and have a minimum length and width of at least 4 in. (10.2 cm) greater than the diameter of the water heater. The drain pan, as described above, can be purchased from your plumbing professional. The drain pan must be piped to an adequate drain. The piping must be pitched for proper drainage.

## WATER CONNECTIONS

### NOTE:

BEFORE PROCEEDING WITH THE INSTALLATION, CLOSE THE MAIN WATER SUPPLY VALVE. After shutting the main water supply valve, open a faucet to relieve the water line pressure to prevent any water from leaking out of the pipes while making the water connections to the water heater. After the pressure has been relieved, close the faucet. The COLD water inlet and HOT water outlet are identified on top of the water heater. The fittings at the cold water inlet and hot water outlet are dielectric waterway fittings with 3/4" NPT tapered male threads. Make the proper plumbing connections between the water heater and the plumbing system in the house. Install a shut-off valve in the cold water supply line.

### CAUTION

If sweat fittings are to be used, DO NOT apply heat to the nipples on top of the water heater. Sweat the tubing to the adapter before fitting the adapter to the water connections. It is imperative that heat is not applied to the nipples containing a plastic liner.

### IMPORTANT

**FAILURE TO INSTALL AND MAINTAIN A NEW, LISTED 3/4" X 3/4" TEMPERATURE PRESSURE RELIEF VALVE WILL RELEASE THE MANUFACTURER FROM ANY CLAIM WHICH MIGHT RESULT FROM EXCESSIVE TEMPERATURE AND PRESSURES.**

If this water heater is installed in a closed water supply system, such as the one having a back-flow preventer in the cold water supply, provisions shall be made to control thermal expansion. DO NOT operate this water heater in a closed system without provisions for controlling thermal expansion. Your water supplier or local plumbing inspector should be contacted on how to control this situation. After installation of the water lines, open the main water supply valve and fill the water heater. While the water heater is filling, open several hot water

faucets to allow air to escape from the water system. When a steady stream of water flows through the faucets, close them and check all water connections for possible leaks. **NEVER OPERATE THE WATER HEATER WITHOUT FIRST BEING CERTAIN IT IS FILLED WITH WATER.**

### WARNING

For protection against excessive temperatures and pressure, install temperature and pressure protective equipment required by local codes, but not less than a combination temperature and pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials as meeting the requirements for *Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22* and the Standard *CAN1-4.4, Temperature, Pressure, Temperature and Pressure Relief Valves and Vacuum Relief Valves*. The combination temperature and pressure relief valve shall be marked with a maximum set pressure not to exceed the maximum working pressure of the water heater. The combination temperature and pressure relief valve shall also have an hourly rated temperature steam BTU discharge capacity not less than the hourly input rating of the water heater.

Install the combination temperature and pressure relief valve into the opening provided and marked for this purpose on the water heater.

**NOTE:** Some models may already be equipped or supplied with a combination temperature and pressure relief valve. Verify that the combination temperature and pressure relief valve complies with local codes. If the combination temperature and pressure relief valve does not comply with local codes, replace it with one that does. Follow the installation instructions above on this page.

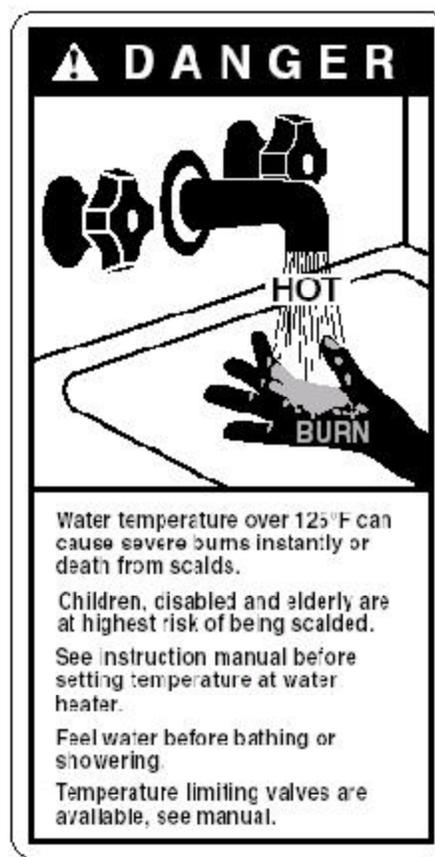
Install a discharge line so that water discharged from the combination temperature and pressure relief valve will exit within six (6) inches (15.3 cm) above, or any distance below the structural floor and cannot contact any live electrical part. The discharge line is to be installed to allow for complete drainage of both the temperature and pressure relief valve and the discharge line. The discharge opening must not be subjected to blockage or freezing. **DO NOT** thread, plug or cap the discharge line. It is recommended that a minimum of four (4) inches (10.2 cm) be provided on the side of the water heater for servicing and maintenance of the combination temperature and pressure relief valve.

Do not place a valve between the combination temperature and pressure relief valve and the tank.

**▲WARNING**  
 Hydrogen gas can be produced in an operating water heater that has not had water drawn from the tank for a long period of time (generally two weeks or more). Hydrogen gas is extremely flammable. To reduce the risk of injury under these conditions, it is recommended that the hot water faucet to be opened for several minutes at the kitchen sink before using any electrical appliance which is connected to the hot water system. If hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as hot water begins to flow. There should be no smoking or open flame near the faucet at the time it is open.

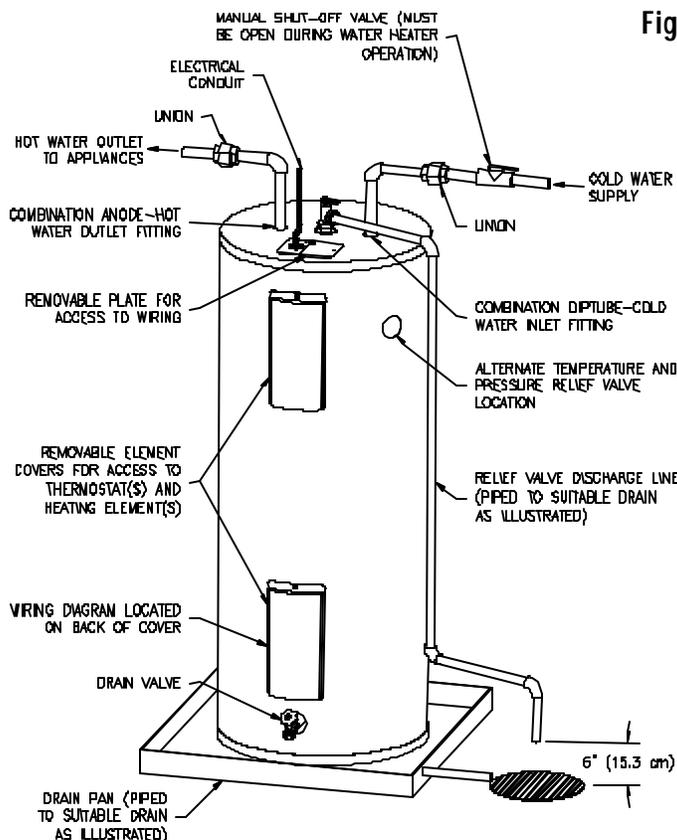
**▲CAUTION**  
 INCREASING THE THERMOSTAT SETTING ABOVE THE PRESET TEMPERATURE MAY CAUSE SEVERE BURNS AND CONSUME EXCESSIVE ENERGY. HOTTER WATER INCREASES THE RISK OF SCALD INJURY.

This water heater can deliver scalding temperature water at any faucet in the system. Be careful whenever using hot water to avoid scalding injury. Certain appliances, such as dishwashers and automatic clothes washers, may require increased temperature water. By setting the thermostat on this water heater to obtain increased temperature water required by these appliances, you may create the potential for scald injury. To protect against injury, you should install an anti-scald tempering valve in the water system. This valve will reduce point of discharge temperature by mixing cold and hot water in branch supply lines. Such lines are available from your local plumbing supplier. Please consult with a plumbing professional.



**Tall Models (See Figure 1)**

The hot and cold water connections are identified on the top of the water heater. Connect the hot and cold water lines to the installed nipples using unions. Install a listed temperature-pressure relief valve in the opening on the side of the water heater.

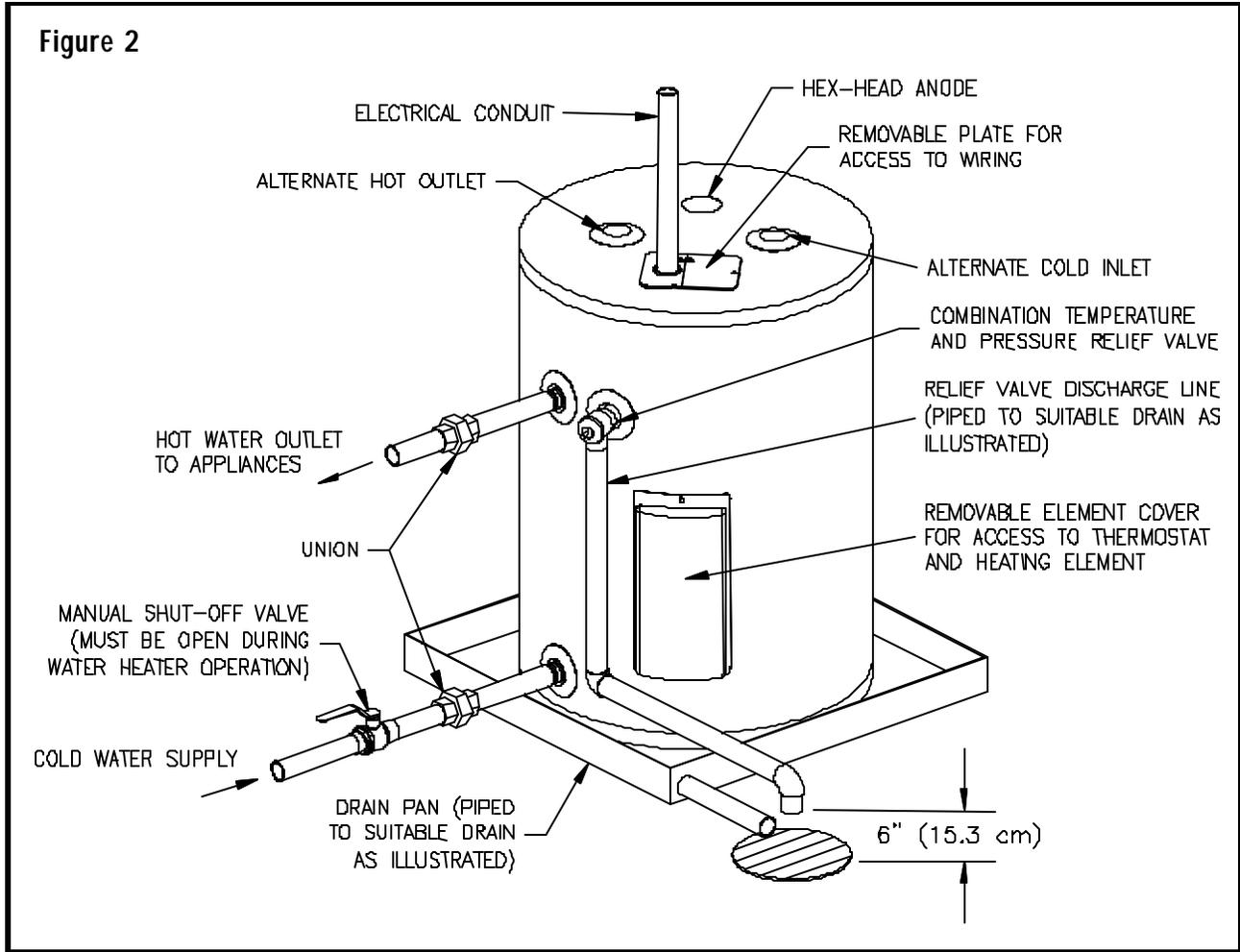


**Figure 1**

**Short/Junior Models (See Figure 2)**

The hot and cold water connections are identified on the side of the water heater. Connect the hot and cold water lines to the installed nipples using unions. Install a listed temperature-pressure relief valve in the opening on the side of the water heater. Install a vacuum relief anti-siphon device in the cold water inlet line when using the side cold water connection.

The 6 and 12 gallon models are equipped for installation with either top or side water connections. They are shipped from the factory with side nipples installed and the alternate top connections plugged. For ease of conversion, the alternate top inlet is supplied with a dip tube. If the top water connections are needed, remove the installed side nipples and the pipe plugs from the alternate top connections. Install the nipples in the top water connections and install the pipe plugs in the side connections. Install a vacuum relief anti-siphon device in the cold water inlet when using the side cold water connection.



### Table Top Models (See Figure 3)

The hot water outlet and cold water inlet are identified on the back panel of the water heater. Remove the porcelain top by sliding it forward and lifting it off the cabinet. Care should be taken in handling the porcelain top to prevent chipping of the porcelain. Remove the four front panel screws; two at the top flange. Check drain valve to make sure that it is closed. Part the top fiberglass insulation to allow access to the plumbing and electrical connections. Connect the cold water supply line and hot water outlet lines using elbows, nipples and unions as shown in the diagrams. Install a shutoff valve in the cold water inlet. Install a listed temperature-pressure relief valve in the remaining fitting.

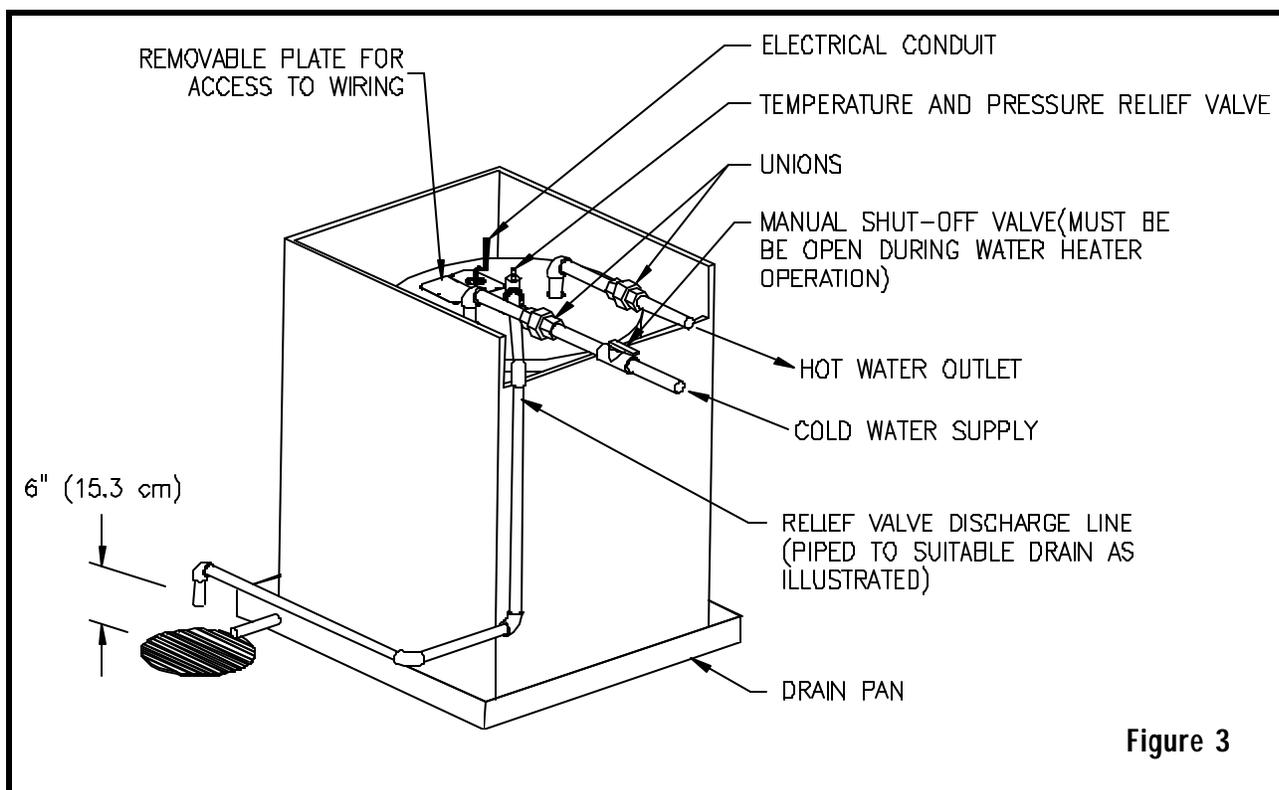


Figure 3

### ELECTRICAL CONNECTIONS

Before any electrical connections are made, be sure that the water heater is full of water and that the manual shut-off valve in the cold water supply line is open. Check the rating plate and wiring diagram before proceeding. This electric water heater was built and wired in accordance with the Underwriters Laboratories testing approvals requirements. The temperature limiting device is of the manual reset, trip-free type and has been factory installed to interrupt all ungrounded power supply conductors in the event of thermostat failure. Thermostats are factory set and wired in accordance with the wiring diagram fastened to the inside of the top access panel. The plumbing supplier in your area ordered this heater wired at the factory to comply with existing area codes, but local utility codes may require or allow other circuitry. Consult your local power company to determine the correct electrical hook-up in order to meet local utility and building codes and in order to obtain the most economical rates. Also check to find out if you are required to obtain a permit before starting the installation. The following chart shows the recommended fuse size for the maximum water heater wattage. The maximum wattage and rated voltage are shown on the water heater data plate. The water heater must be well grounded. A green ground screw is provided at the electrical connection point for connecting a ground wire.

Max. Watts	Recommended Fuse Size				
	Voltage				
	120v	208v	240v	277v	480v
1000	15A	10A	10A	10A	10A
1250	15A	10A	10A	10A	10A
1500	20A	10A	10A	10A	10A
2000	25A	15A	15A	10A	10A
2500	30A	15A	15A	15A	10A
3000	35A	20A	20A	15A	10A
3500	---	25A	20A	20A	10A
4000	---	25A	25A	20A	15A
4500	---	30A	25A	25A	15A
5000	---	30A	30A	25A	15A
5500	---	35A	35A	25A	15A
6000	---	40A	35A	30A	20A

### GENERAL OPERATION

Before closing the switch to allow electric current to flow to the water heater, make certain that the water heater is full of water and that the cold water inlet

valve is open. Complete failure of the heating elements will result if they are not totally immersed in water at all times. When the switch is closed, the operation of this electric water heater is automatic. The thermostats are preset to the "HOT" setting to provide a water temperature of approximately 120°F (49°C) to reduce the risk of scald injury.

**▲ CAUTION**

Scalding may occur within five (5) seconds at a temperature setting of 135°F (57°C).

Care must be taken whenever using hot water to avoid scalding injury. Certain appliances require high temperature hot water (such as dishwashers and automatic clothes washers).

**TO FILL THE WATER HEATER**

1. Close the water heater drain valve by turning the knob clockwise.
2. Open the cold water supply shut-off valve.
3. Open several hot water faucets to allow air to escape from the system.
4. When a steady stream of water flows from the faucets, the water heater is filled. Close the faucets and check for water leaks at the water heater drain valve, combination temperature and pressure relief valve and the hot and cold water connections.

**TO DRAIN THE HEATER**

Should it become necessary to completely drain the water heater, make sure you follow the steps below:

1. Disconnect the power supply to the heater. Consult the plumbing professional or electric company in your area for service.
2. Close the cold water supply shut-off valve.
3. Open the drain valve on the water heater by turning the knob counter-clockwise. The drain valve has threads on the end that will allow connection of a standard hose coupling.
4. Open a hot water faucet to allow air to enter the system.

To refill the water heater, refer to "TO FILL THE WATER HEATER."

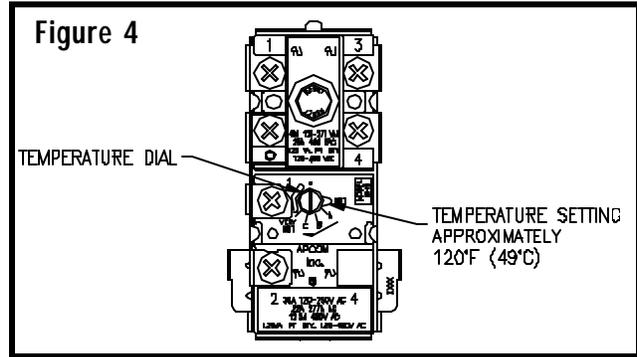
**THERMOSTAT ADJUSTMENT**

**▲ CAUTION**

Before adjusting thermostat(s), turn off power supply to the water heater.

The temperature of the water can be changed by adjusting the thermostat(s). Before any work is done on the water heater, disconnect all power to the water heater by opening the switch at the main electrical circuit breaker or fuse box. Remove the access panels or front panel on table tops; fold the insulation outward away from the controls. Set the thermostat(s) to the desired water temperature using a screw driver to move the thermostat dial. The thermostat has been factory preset to approximately 120°F (49°C). Rotate the temperature

dial clockwise to increase water temperature. Replace the insulation making sure that the controls are well covered and that the plastic terminal shield has not been displaced; replace the access panel. The water heater is now ready for operation and the main switch can be closed.



**⚠ DANGER**

Hotter water increases the risk of scald injury. Scalding may occur within five (5) seconds at a temperature setting of 135°F (57°C). To protect against hot water injury, install an anti-scald tempering valve in the water system. This valve will reduce point of discharge temperature by mixing cold and hot water in branch water lines. A licensed plumbing professional or local plumbing authority should be consulted.

**MAINTENANCE**

**IMPORTANT**

The water heater should be inspected at a minimum of annually by a qualified service technician for damaged components. DO NOT operate this water heater if any part is found damaged.

Shut off the electric power whenever the water supply to the water heater is off. Shut off the electric power and water supply, drain the heater completely to prevent freezing whenever the building is left unoccupied during the cold weather months. In order to ensure efficient operation and long tank life, drain the water heater at least once a month through the drain valve until the water runs clear. Failure to do this may result in noisy operation and lime and sediment buildup in the bottom of the tank. Check the temperature-pressure relief valve to ensure that the valve has not become encrusted with lime. Lift the lever at the top of the valve several times until the valve seats properly without leaking and operates freely.

**▲ WARNING**

**When lifting lever of temperature-pressure relief valve, hot water will be released under pressure. Be certain that any released water does not result in bodily injury or property damage.**

The following maintenance should be performed by a qualified service technician at the minimum periodic intervals suggested. In some installations, the maintenance interval may be more frequent depending on the amount of use and the operating conditions of the water heater. Regular inspection and maintenance of the water heater will help to ensure safe and reliable operation.

1. Annually, check the operation of the thermostat(s).
2. Bi-annually, check the seal around the heating elements for leaks. If there is any sign of leaking, disconnect the power supply to the water heater and contact the plumbing professional that installed this water heater or a qualified service technician.
3. At least once a year, check the combination temperature and pressure relief valve to ensure that the valve has not become encrusted with lime. Lift the lever at the top of the temperature-pressure relief valve several times until the valve seats properly without leaking and operates freely.

**▲ WARNING**  
**When lifting lever of the combination temperature and pressure relief valve, hot water will be released under pressure. Be careful that any released water does not result in bodily injury or property damage.**

4. If the combination temperature and pressure relief valve on the appliance discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector on how to correct this situation. Do not plug the combination temperature and pressure relief valve outlet for any reason.
5. Monthly, drain off a gallon of water from the water heater to remove silt and sediment.

**▲ WARNING! THIS WATER MAY BE HOT.**

6. A combination sacrificial anode rod/hot water outlet nipple has been installed to extend tank life. The anode rod should be inspected periodically (every 2 years) and replaced when necessary to prolong tank life. Water conditions in your area will influence the time interval for inspection and replacement of the anode rod. Contact the plumbing professional who installed the water heater or the manufacturer listed on the rating plate for anode replacement information. The use of a water softener may increase the speed of anode consumption. More frequent inspection of the anode is needed when using softened (or phosphate treated) water.

**▲ CAUTION**  
**FOR YOUR SAFETY, DO NOT ATTEMPT REPAIR OF COMBINATION GAS CONTROL, BURNERS OR GAS PIPING. REFER REPAIRS TO A QUALIFIED SERVICE TECHNICIAN.**

Contact your local plumbing supplier or plumbing professional for replacement parts or contact the company at the address displayed on the rating plate of the water heater.

For faster and better service, please provide the part name, model, and serial number(s) of the water heater(s) when ordering parts.

## *Notes*