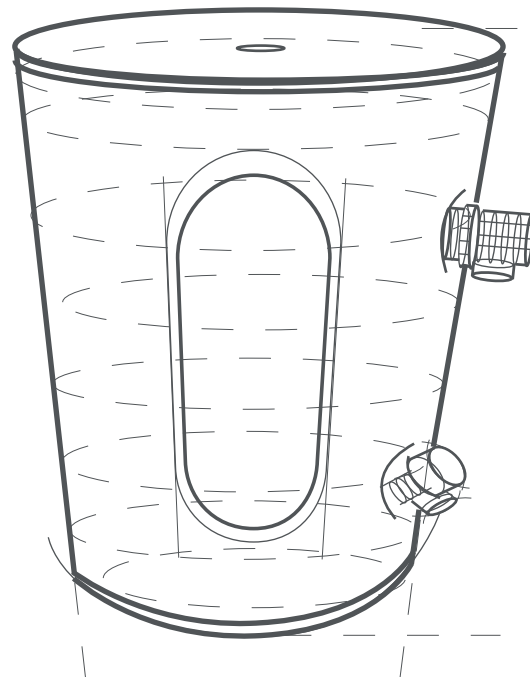


Electric Point of Use Water Heaters

IMPORTANT SAFETY INSTRUCTIONS

- **READ ALL INSTRUCTIONS BEFORE USING THIS WATER HEATER.** Install or locate this water heater only in accordance with the installation instructions. Use this water heater only for its intended use as described in this manual.
- Check the data plate on the water heater before installation to make certain the voltage is the same as the electrical supply being connected to the water heater.
- This water heater must be connected only to a properly grounded electrical supply. Do not fail to properly ground this water heater (see "Electrical Connections" section, on page 7).
- Turn off the electrical supply before servicing this water heater.
- Raising water temperatures increase the risk of scald injury. Hot water can produce 3rd degree burns in 6 seconds at 140°F and in 30 seconds at 130°F.
- As with any appliance close supervision is necessary when used by children.
- This water heater should be serviced only by qualified service personnel.
- Do not use this water heater if it has damaged wiring, is not working properly, or had been generally damaged or dropped.



WARNING: The information in these instructions must be followed exactly. Improper installation, adjustment, service or maintenance can cause property damage, personal injury or death.

SAVE THESE INSTRUCTIONS

INSTALLER:

- Affix these instructions to or adjacent to the water heater.
- Before leaving the premises, review this operation and service manual to be sure the water heater has been installed correctly. Start and operate the unit for one complete cycle and make sure the water temperature is acceptable to the consumer at the outlets fixtures.

OWNER:

- Retain these instructions and warranty for future reference. Retain the original receipt as proof of purchase.



WARNING: This appliance shall not be installed in any location where flammable liquids are stored or vapors are likely to be present. Flammable vapors may be drawn to this water heater from other areas of the structure by air currents.

INSTALLATION AND SERVICE MUST BE PERFORMED BY A QUALIFIED
INSTALLER OR SERVICE AGENCY

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 warranty or data plate which came with your water heater.

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WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury, death, or property damage.

OWNER:

READ AND RETAIN THESE
INSTRUCTIONS
 AND WARRANTY
 FOR FUTURE REFERENCE.

INSTALLER: Please complete the following information at the time of installation retain and present along with the warranty in the event a claim is necessary.

MODEL NUMBER _____ TYPE _____
 SERIAL NUMBER _____

THIS WATER HEATER HAS BEEN INSTALLED IN ACCORDANCE WITH THESE
 INSTALLATION INSTRUCTIONS AND LOCAL CODE REQUIREMENTS ON

_____ Date _____

INSTALLER: _____

IMPORTANT SAFETY INFORMATION.

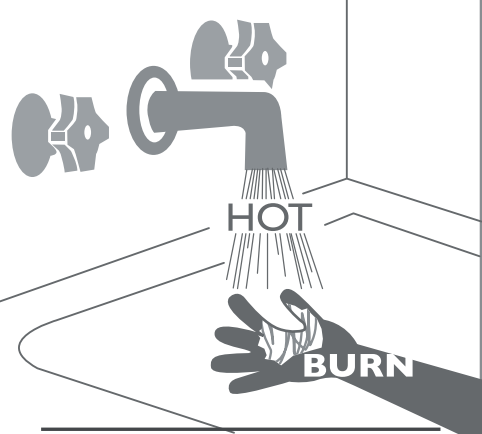
READ ALL INSTRUCTIONS BEFORE USING

WARNING: If the Water Heater thermostat is set too high there is Serious Potential for SCALDING.

NOTE: When this water heater is supplying general purpose hot water requirements for use by individuals, a thermostatically controlled mixing valve for reducing point-of-use water temperature is recommended to reduce the risk of scald injury. Contact a licensed plumber or the local plumbing authority for further information.

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

! D A N G E R



Water temperature over 125°F can cause severe burns instantly or death from scalds.

Children, disabled and elderly are at highest risk of being scalded.

See instruction manual before setting temperature at water heater.

Feel water before bathing or showering.

Temperature limiting valves are available, see manual.

SAFETY INFORMATION

Water piping, fittings, and valves must be properly installed for the correct and safe operation of this water heater. Please note the following:

DO NOT install this water heater with iron piping. The system should be installed only with new piping that is suitable for potable (drinkable) water such as copper, CPVC or polybutylene. DO NOT use PVC water piping.

DO NOT use any pumps, valves, or fittings that are not compatible with potable water.

DO NOT use valves that may cause excessive restrictions to water flow. Use full flow ball or gate valves only.

DO NOT use 50/50 tin-lead solder (or any lead based solder) in potable water lines. ONLY use 95/5 Tin / antimony or other equivalent materials.

DO NOT tamper with thermostat heater elements, electrical connections, or temperature and pressure relief valves. Tampering with any of these components is DANGEROUS and can result in property damage, severe injury or death. Tampering voids all warranties. Only qualified technicians should service the above components.

DO NOT use with piping that has been treated with chromates, boiler seal, or other chemicals.

DO NOT add any chemicals to the system piping which will contaminate the potable water supply.

DO NOT install check valves on the cold water supply line to the water heater.

FOR INSTALLATIONS IN THE STATE OF CALIFORNIA

California Law requires that residential water heaters must be braced, anchored or strapped to resist falling or horizontal displacement due to earthquake motions. For residential water heaters up to 52 gallons capacity, a brochure with generic earthquake bracing Instructions may be obtained from: 2808 Metropolitan Place, Pomona, CA. 91767 USA 1-888-883-0788 or ask a water heater dealer.

Applicable local codes govern installation. For residential water heaters with a capacity greater than 52 gallons, consult the local building jurisdiction for acceptable bracing procedures.

GENERAL INFORMATION


 WARNING

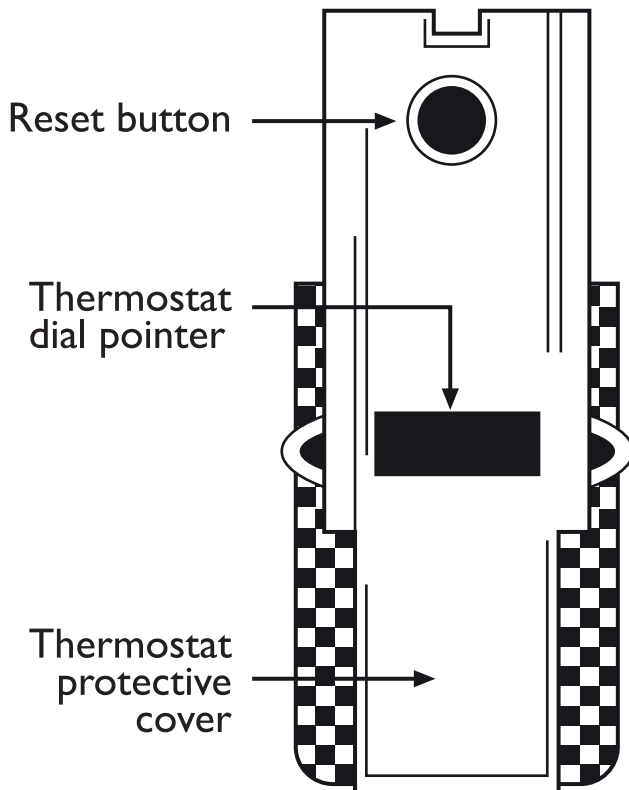
The manufacturer's warranty does not cover any damage or defect caused by installation or attachment or use of any special attachment such as energy saving devices (other than those authorized by the manufacturer) into, onto or in conjunction with the water heater. The use of such unauthorized devices may shorten the life of the water heater and may endanger life and property. The manufacturer disclaims any responsibility for such loss or injury resulting from the use of such unauthorized devices.

INSPECT SHIPMENT - for possible damage. The manufacturer's responsibility ceases upon delivery of goods to the shipper in good condition. Any claims for damage, shortage in shipments, or no delivery must be filed immediately against carrier by consignee.

CAUTION: Before installation check rating plate on water heater to make sure voltage and phase shown is the same as the electric supply to which the water heater is going to be connected.

CAUTION: Do not turn on electrical current to water heater elements until tank has been completely filled with water. Open several hot water faucets to allow air to escape from the system while tank is filling. The heating elements will be damaged if not completely immersed in water if energized for even a short time.

 **WARNING:** HAZARD OF ELECTRICAL SHOCK! Before removing any access panels or servicing the water heater make sure the electrical supply to the water heater is turned "OFF". Failure to do this may result in DEATH, SERIOUS BODILY INJURY OR PROPERTY DAMAGE.

**DANGER** WARNING

DO NOT INSTALL OUTDOORS. This water heater is certified for indoor installation only. Failure to follow these instructions could result in FIRE, PROPERTY DAMAGE, and/or PERSONAL INJURY OR DEATH.

 DANGER

Areas where Flammable liquids (Gasoline, solvents, liquid propane, butane, etc.), or other substances which emit flammable vapors are stored may not be suitable for water heater installation. Natural air movements can carry flammable vapors varied distances from where they are stored or used. The water heater thermostat contacts can arc and ignite these vapors causing property damage, serious burns or death. Never store or use flammable substances in the same room or area containing an electric water heater. Gasoline or other flammable substances must never be used in the same room or area containing a water heater or other spark-producing device.

IMPORTANT: LOCAL CODES AND REQUIREMENTS IN YOUR AREA MAY REQUIRE THAT THE WATER HEATER BE INSTALLED IN SUCH WAY THAT THE BOTTOM THERMOSTAT IS ELEVATED AT LEAST 18 INCHES FROM THE FLOOR.

The temperature of the water in the heater is regulated by the adjustable surface mounted thermostat(s) located behind the jacked access panel(s). Dual element water heaters have two thermostats. To comply with safety regulations the thermostat(s) are set at 125°F before the water heater is shipped from the factory.

The illustration above shows the temperature adjustment dial used for setting the water temperature. Refer to the Operating Instructions in this manual for detailed instructions on how to adjust the thermostat(s).

Some governing bodies may require the use of external insulation blankets when water heaters are installed in newly constructed homes and/or additions. If an insulation blanket is used on this water heater CAUTION must be exercised so as to not restrict its proper function and operation. Please note the following:

- Do not cover the temperature and pressure relief valve or any labels or instruction materials applied to the water heater. These labels must remain visible for reference by the user.
- Do not remove any labels as they are a permanent part of the water heater as required by certification agencies and/or the Federal Government.
- Do not cover any access panels leading to element compartments.
- Do not cover or obstruct ventilation openings in electrical compartment or place insulation in contact with electrical compartment panel door

I. LOCATION AND INSTALLATION

This residential water heater should be installed in a clean, dry location close to where a good electrical connection can be made and as close to the major usage of hot water as possible. The unit can be installed on a combustible floor with 0 inches minimum clearance to combustible walls. The heater should be located so that all electrical controls, heating elements, drain valve and water connections are accessible. Adequate clearance must be provided for the access panel.

This water heater should be installed in accordance with all national, state and local codes and ordinances. If additional information is desired, the latest edition of the National Electric Code "NFPA 70" are recommended.

The above information is available from:
National Fire Protection Agency
1 Batterymarch Park Quincy, MA 02269
American National Standards Institute,
1430 Broadway, New York, NY 10018

Check your telephone listings for the local authorities having jurisdiction over your installation.

CAUTION: This water heater must be located in an area where leakage of the tank or connections 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. Such pans must be at least 2 inches deep having a minimum length and width of at least 2 inches greater than the diameter of the water heater and should be piped to an adequate drain.

This electric residential water heater is not intended for space heating applications.

NOTE: BEFORE PROCEEDING WITH THE INSTALLATION, CLOSE THE MAIN WATER SUPPLY VALVE, OPEN A WATER FAUCET TO RELIEVE THE WATER PRESSURE, AND THEN CLOSE THE FAUCET.

2. WATER LINES AND CONNECTIONS

Condensation can form on the tank when it is first filled with water. Condensation might also occur with a heavy water draw and very cold inlet water temperature. This condition is not unusual and will evaporate after the water becomes heated. If, however, the condensation continues, examine the piping and fittings for possible leaks.

The hook-up connections will be determined by the need for hot water. The cold water line connects to the inlet nipple at the base of the water heater. The hot water line connects to the outlet nipple on top of the water heater. By providing unions on the water connections and a shut off valve in the cold water line the water heater may be disconnected for servicing when necessary. Two temperatures of hot water can be achieved by a mixing valve. The valves, piping, and pipe connection should be of the same type and manufacturer. The pipe lengths from the center line of inlets and outlets to the water heater must be exactly equal. All hook-ups must comply with all local codes. Install a vacuum relief anti-siphon device on the cold water inlet line. Do not install a check valve or other devices that would prevent reverse flow of water unless required by local codes because a closed system will result and frequent operation of the relief valve will occur.

IMPORTANT SAFETY INFORMATION.**READ ALL INSTRUCTIONS BEFORE USING****PIPING INSTALLATION**

Water supply pressure should not exceed 80% of the working pressure of the water heater. The working pressure is stated on the water heaters' data plate. If this occurs, a pressure limiting valve with a by-pass may need to be installed in the cold water inlet line. This should be placed on the supply to the entire building in order to maintain equal hot and cold water pressures.

IMPORTANT: Heat cannot be applied to the water fittings on the water heater as they may contain nonmetallic parts. If solder connections are used, solder the pipe to the adapter before attaching the adapter to the hot and cold water fittings.

IMPORTANT: Always use a good grade of joint compound and be certain that all fittings are drawn up tight.

CLOSED SYSTEM / THERMAL EXPANSION

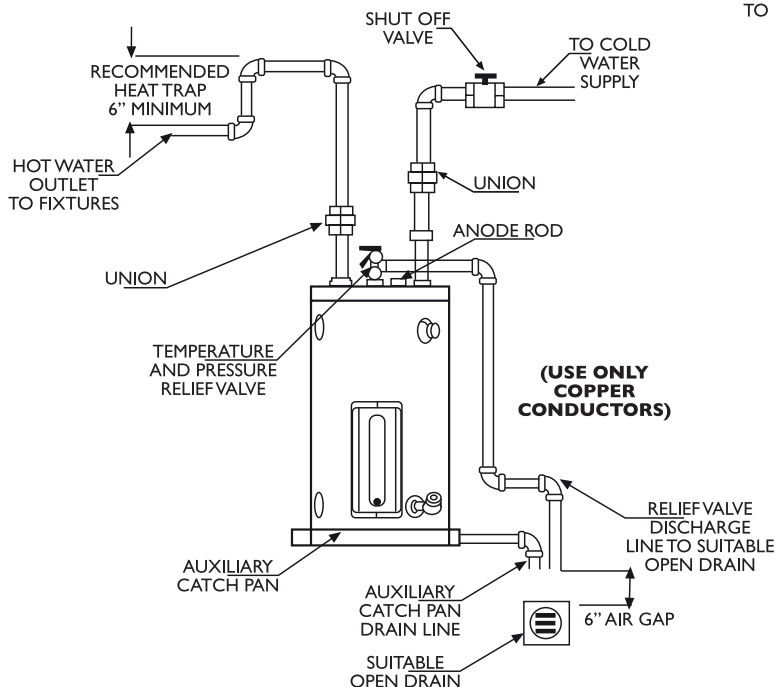
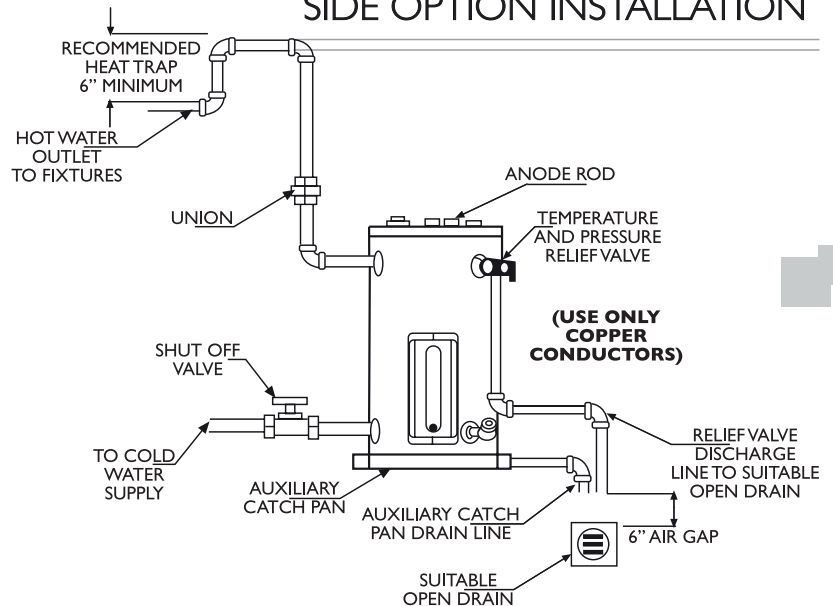
Periodic discharge of the temperature and pressure relief valve may be due to thermal expansion in a closed water supply system. The water utility supply meter may contain a check valve, backflow preventer or water pressure reducing valve. This will create a closed water system. During the heating cycle of the water heater, the water expands causing increased pressure inside the water heater. The temperature and pressure relief valve may discharge hot water under these conditions which results in a loss of energy and a build-up of lime on the relief valve seat. To prevent this from happening, there are two recommendations:

Install a diaphragm-type expansion tank that is suitable for potable water on the cold water supply line. The expansion tank must have a minimum capacity of 1.5 US gallons for every 50 gallons of stored water.

Contact the local water supplier or plumbing inspector for information on how to control this situation. Do not plug up the temperature and pressure relief valve.

WARNING!
DO NOT ATTEMPT TO OPERATE THIS WATER HEATER WITH THE COLD WATER SHUT OFF VALVE CLOSED. THIS CAN RESULT IN SERIOUS DAMAGE TO THE WATER HEATER TANK.

IMPORTANT: Do not fail to install a suitable drain pan under the water heater and provide a drain line to an adequate drain.

UP SIDE OPTION INSTALLATION**SIDE OPTION INSTALLATION**

WARNING! The pressure rating of the relief valve must not exceed 150 PSI or exceed the maximum working pressure of the water heater as marked on the rating plate.

3. FAILURE TO INSTALL A LISTED, ADEQUATELY SIZED TEMPERATURE & PRESSURE RELIEF VALVE WILL RELEASE THE MANUFACTURER FROM ANY CLAIM WHICH MIGHT RESULT FROM EXCESSIVE TEMPERATURES AND PRESSURES.

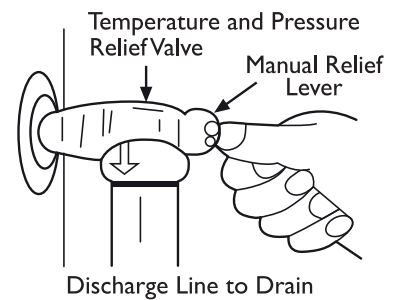
To reduce the risk of excessive pressures and temperatures in this water heater, install temperature and pressure protective equipment required by local codes and no less than a combination temperature and pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shut off Devices for Hot Water Supply Systems, ANSI Z21.22. This valve must be marked with a maximum set pressure not to exceed the marked maximum working pressure of the water heater. Install valve into opening provided and marked for this purpose on the water heater and orientate valve or provide tubing so that any discharge only exists 6 inches above or any distance below the structural floor while ensuring there is no contact with any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances.

THE TEMPERATURE & PRESSURE RELIEF VALVE:

- Must not be in contact with any electrical part.
- Must be connected to a proper discharge line which terminates at an adequate drain.
- Must not exceed the working pressure shown on the data plate of the water heater.

Manually operate the temperature and pressure relief valve at least once a year to make sure it is working properly. To prevent water damage the valve must be properly connected to a discharge line which terminates at an adequate drain.

Standing clear of the outlet (discharged water may be hot), slowly lift and release the lever handle on the temperature and pressure relief valve to allow the valve to operate freely and return to its closed position. If the valve fails to completely reset and continues to release water, immediately shut off the electrical power and the cold water inlet valve and call a qualified service technician.



DANGER: DISCHARGING WATER MAY BE HOT AND CAN CAUSE SCALD INJURIES AND PROPERTY DAMAGE. DISCHARGE LINES MUST BE PROPERLY INSTALLED AND PIPED TO AN ADEQUATE DRAIN.

THE DISCHARGE LINE:

- Must not be smaller than the pipe size of the relief valve.
- Must not be capped, blocked, plugged or contain any valve between the relief valve and the end of the discharge line.
- Must terminate 6 inches above a floor drain or external of the building.
- Must be capable to withstand 250°F (121°C) without distortion.
- Must be installed to allow complete drainage of both the temperature and pressure relief valve and discharge line.

4. RECIRCULATING LINES

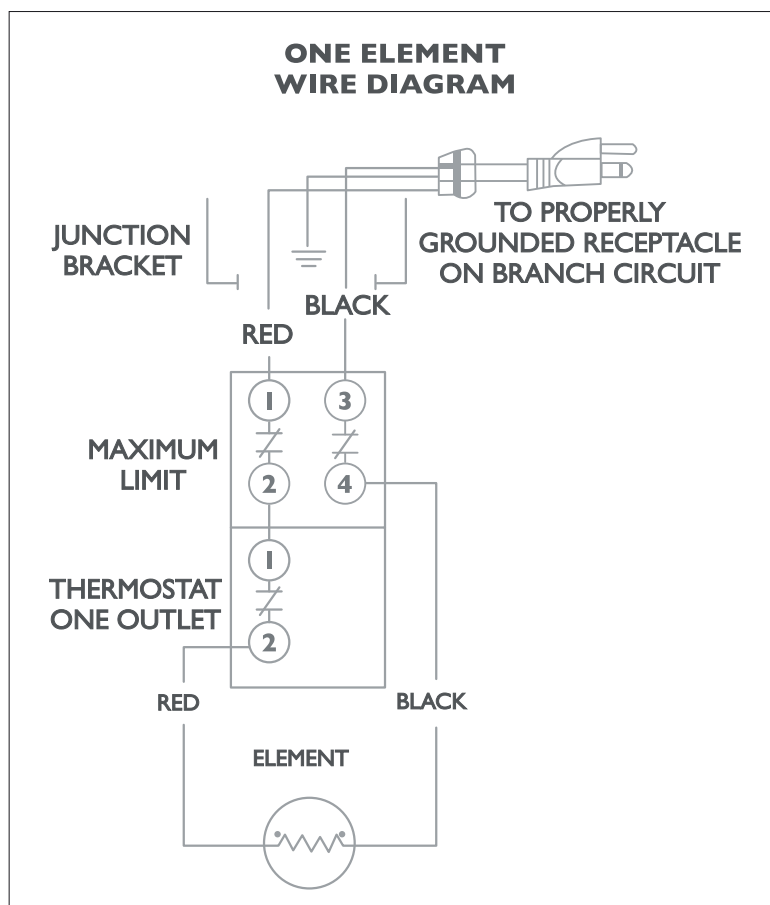
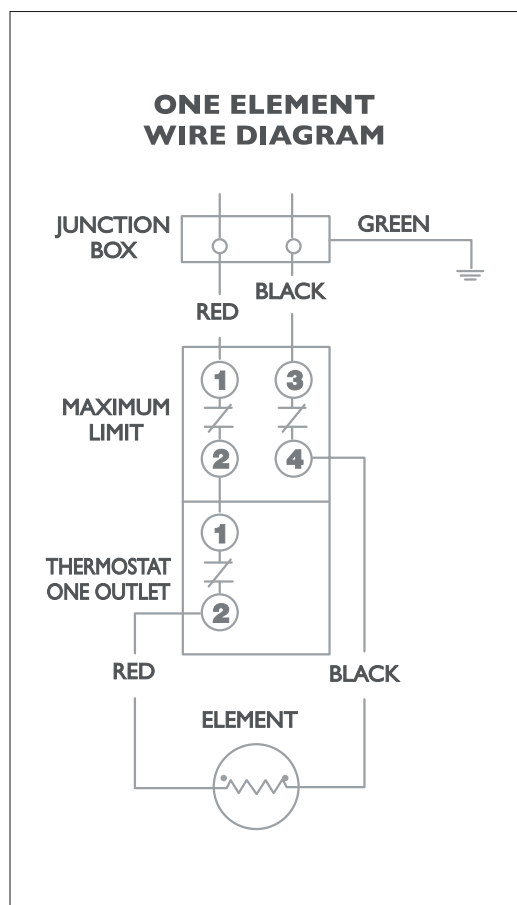
In some installations a return circulation line may be installed. The recirculation line can be connected to the drain valve or hot inlet water connection using a tee.

5. TURNING ON WATER TO HEATER

After piping and hook-ups are completed, open all hot water outlets. Open cold water inlet valve to fill tank. As each hot water outlet delivers water free from air, it can be shut off. Check the system for leaks.

* When side option piping is installed, loosen water outlet pipe plug on tank top to allow the air to escape when initially filling tank. Tank should be attended during this process. Plug should be retightened when air leakage is replaced by water escaping at this port. Be careful not to allow escaping water to contact wires.

ELECTRICAL DIAGRAM

**INTENDED FOR CERTAIN MODELS ONLY**

NOTICE: This guide recommends minimum branch circuit sizing and wire size based on National Electric Code. Refer to wiring diagrams in this manual for field wiring connections.

BRANCH CIRCUIT SIZING AND WIRE SIZE GUIDE

Total Water Heater Wattage	Recommended Over Current Protection (fuse or circuit breaker amperage rating)			Copper Wire Size AWG Based on NEC Table 310-16 (75°C)		
	120V	208V	240V	120V	208V	240V
1500*	20	15	15	12	14	14
1700	20	15	15	12	14	14
2000	25	15	15	10	14	14
2500	30	15	15	10	14	14
3000	35	20	20	8	12	12
3500	-	25	20	-	10	12
3800	-	25	20	-	10	12
4000	-	25	25	-	10	10
4500	-	30	25	-	10	10
5000	-	30	30	-	10	10
5500	-	35	30	-	8	10
6000	-	40	35	-	8	8
9000	-	-	50	-	-	8

⚠ DANGER: DO NOT USE THIS WATER HEATER WITH ANY ELECTRICAL SUPPLY VOLTAGE OTHER THAN THE ONE LISTED ON THE DATA PLATE. THIS WATER HEATER IS EQUIPPED FOR USE WITH ONE VOLTAGE RATING ONLY. CHECK THE DATA PLATE ON THE FRONT OF THE WATER HEATER FOR THE CORRECT VOLTAGE RATING. FAILURE TO USE THE CORRECT VOLTAGE CAN CAUSE PROBLEMS WHICH MAY RESULT IN DEATH, SERIOUS BODILY INJURY OR PROPERTY DAMAGE. IF YOU HAVE ANY QUESTIONS OR DOUBTS CONSULT YOUR ELECTRICAL UTILITY COMPANY BEFORE INSTALLING THIS WATER HEATER.

All wiring must conform to local codes and/or the latest edition of National Electrical Code ANSI/NFPA 70. 21/2 gallon models are supplied with a plug connected power supply cord for use only in 120VAC applications. The cord must be connected to a properly grounded receptacle on a branch circuit with copper conductors, and over a current protection device with suitable disconnect means. If desired, straight field wiring connections can be made to these models by removing the access cover on the front of the water heater and disconnecting the cord set from the thermostat and the grounding plug. Remove the cord set and strain relief bushing from the junction bracket. The hole in the junction bracket will accommodate 1/2" or 3/4" electrical fittings. Refer to wiring diagrams in this manual for proper wiring connections.

When making the electrical connections, ensure that:

- The electrical supply has the proper overload fuse or breaker protection.
- Wire sizes and connections comply with all applicable codes.
- Wiring is enclosed in approved conduit (if required by local codes).
- The water heater and electrical supply are properly grounded.

If you lack the necessary skills required to properly install the electrical wiring to this water heater, **DO NOT PROCEED**, but have a qualified electrician perform the installation.

BEFORE INSTALLING ELECTRICAL WIRING, MAKE SURE THE ELECTRICAL SUPPLY TO THE WATER HEATER IS TURNED "OFF".

NOTE: Before closing the switch to allow electric current to flow to the water heater, make certain that the water heater is completely full of water and that the cold water inlet valve is open. If the heating elements are not completely immersed in water at all times, they will be damaged if energized for even a short time. When the switch is closed the operation of the water heater is automatic. This Electric Residential Water Heater is designed for operation as specified on the rating plate. All electrical connections to elements and thermostats have been made at the factory. **DO NOT ALTER** any of the internal wiring. Wiring connections may loosen in shipment. Check all connections for tightness.

- Provide a separate fused disconnect switch for each water heater.
- Open cover door of the wiring connection box.
- Bring the power leads from an adequately fused disconnect switch



(not furnished with the water heater due to varying state and local codes) and use wire nuts to connect the power supply wiring to the wires inside the water heater connection box. Where long runs of wiring occur, local ordinances or the utility company necessitates that an increase in size may be required.

D. This water heater must be properly grounded. A ground lug is provided within the electrical control box for connection of a properly sized ground.

E. Close the cover door of the wiring connection box.

CAUTION: The presence of water in the piping and water heater does not provide sufficient conduction for a ground, nonmetallic piping, dielectric unions, flexible connectors, etc., can cause the water heater to be electrically isolated.

The electrical diagram for this water heater is in the manual. Refer to this diagram when servicing.

7. THERMOSTATS AND CONTROLS

All Electric Residential Water Heaters feature automatic controls to regulate heating elements. Surface mounted thermostats are used on this water heater. The thermostats are pre-set to provide a water temperature of 125°F to reduce the risk of scald injury.

CAUTION: SCALDING MAY OCCUR WITHIN (5) SECONDS AT A TEMPERATURE SETTING OF 135°F.


Care must be taken when using hot water to avoid scalding injury. Certain appliances require high temperature hot water (such as dishwashers and automatic clothes washers). In order to prevent potential scald injury, install an anti-scald tempering valve in the water system (optional low temperature surface thermostats are available with a temperature range from 90°F to 140°F). If hotter water is required, adjustment of the thermostat(s) will be necessary. To adjust the thermostats, TURN OFF all electrical power to the water heater. Open the control box cover and adjust each surface thermostat to the desired temperature.

CAUTION: INCREASING THE THERMOSTAT ABOVE THE PRE-SET MAY CAUSE SEVERE BURNS AND CONSUME EXCESSIVE ENERGY. HOTTER WATER INCREASES THE RISK OF SCALD INJURY AND MAY ALSO CAUSE THE "HIGH LIMIT", WITHIN THE THERMOSTAT, TO SHUT DOWN POWER TO THE WATER HEATER UNDER CERTAIN OPERATING CONDITIONS.

Each heater has a built in Energy Cut Off device(s). If for any reason the water temperature becomes excessively high, the high limit switch breaks the circuit to the heating elements. Once the switch opens, it must be manually reset however; the cause of the over temperature condition must be corrected first. To reset the high limit switch, follow the written instructions shown on the next page.

WATER TEMPERATURE REGULATION

The thermostat is adjusted to a temperature setting of 125°F or lower when it is shipped from the factory. Water temperature can be regulated by adjusting the thermostat to the preferred settings. The preferred starting point is 125°F. There is a hot water scald potential if the thermostat is set too high.

 **DANGER:** ADJUSTING THE THERMOSTAT PAST THE 125°F SETTING ON THE TEMPERATURE DIAL WILL INCREASE THE RISK OF SCALD INJURY.

During low demand periods when hot water is not being used, a lower thermostat setting will reduce energy consumption while still satisfying your normal hot water needs. If hot water use is expected to be more than normal, a higher thermostat setting may be required to meet the increased demand.

When leaving the premises for extended periods, turn the thermostats to their lowest setting. This will maintain the water at low temperatures with minimum energy losses and prevent the tank from freezing during cold weather.

! DANGER:

HOT WATER CAN PRODUCE
FIRST DEGREE BURNS WITHIN:
3 SECONDS AT 140°F (60°C),
20 SECONDS AT 130°F (54°C)
AND 8 MINUTES AT 120°F (49°C)

SAFETY CONTROLS

The water heater is equipped with a combination thermostat and temperature limiting control (ECO) that is located above the heating element on the tank surface. If for any reason the water temperature becomes excessively high, the temperature limiting control (ECO) breaks the power circuit to the heating element. Once the control opens, it must be reset manually.

CAUTION: The cause of the high temperatures must be investigated by a qualified service technician and corrective action must be taken before returning the water heater to service again.

To reset the high limit:

1. Water in the tank must be cooled down.
2. Turn off the power to the water heater.
3. Remove the jacket access panel(s) and insulation.
The thermostat protective cover should not be removed.
4. Press the red RESET button.
5. Replace the insulation and jacket access panel(s) before turning on the power to the water heater.

WATER TEMPERATURE SETTING

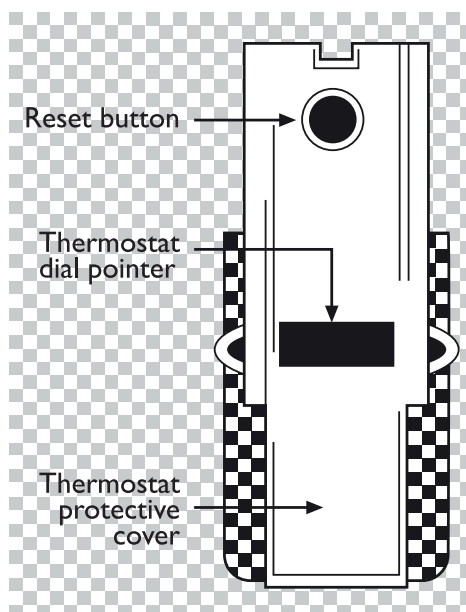
1. Turn off the power to the water heater.

2. Remove the jacket access panel(s) and insulation exposing the thermostat(s).

The thermostat protective cover(s) should not be removed.

3. Using a small Flat blade screwdriver set the thermostat(s) dial pointer to the desired temperature.

4. Replace the insulation and jacket access panel(s). Turn on the power to the water heater.



Type 59T thermostat and protective cover

! WARNING:
HOUSEHOLDS WITH SMALL
CHILDREN, ELDERLY, IMPAIRED
OR DISABLE MEMBERS
AND ANY ONE
WITH TEMPERATURE SENSITIVE
SKIN MAY REQUIRE LOWER
TEMPERATURE SETTINGS TO
REDUCE THE RISK
OF SCALD INJURY.

8. HEATING ELEMENTS

The electric elements are mounted inside the tank to transfer heat directly into the water. To replace an element DISCONNECT POWER to the water heater; drain tank and replace element. 1 1/2 screw-type element wrenches are available from most supply houses. Do not over tighten new element, as this will cause distortion of the new element gasket. Fill tank with water; opening hot water faucet(s) to allow air to escape from the system while tank is filling. The heating elements will burn out if not immersed in water. Check for leaks before closing door panel or turning on power.

WARNING:
REMOVAL AND REPLACEMENT
OF THE HEATING ELEMENTS
INVOLVES
THE DISCONNECTION OF
ELECTRICAL WIRING. THESE
PROCEDURES
MUST ONLY BE PERFORMED BY
A QUALIFIED SERVICE
TECHNICIAN.

9. MAINTENANCE OF WATER HEATER SYSTEM

Good maintenance practice requires that the tank be frequently drained, inspected and cleaned of deposits. Foreign material can wash in and unless the water supply is naturally soft (0 to 5 grains hardness), scale or lime deposits will accumulate in the tank. Hard water scale precipitates at an increasingly high rate in proportion to an increase in water temperature.

Failure of the tank or heating elements due to accumulated deposits does not fall within the scope of the warranty.

WATER HEATER SOUNDS

1. Possible noises due to expansion and contraction of some metal parts during periods of heat-up and cool-down do not represent harmful or dangerous conditions.
2. Sediment build-up in the tank bottom will create varying amounts of noise and may cause premature tank failure.

DRAINING HEATER

WARNING

The water drained from the tank may be hot enough to present a SCALD HAZARD and should be directed to a suitable drain to prevent injury or damage.

In order to drain water heater; turn off cold water supply, then open a hot water faucet or lift the handle on the relief valve to admit air to the tank. Attach one end of a garden hose to the drain valve on the water heater and direct the stream of water; coming from the other end of the hose, to a drain where it will not cause damage.

If periodic draining of this unit is desired, drain valve can be turned slightly clockwise with a wrench to allow easier connection of the hose.

Make sure water heater is completely filled with water before reenergizing.

CAUTION: When draining the water heater, make sure that the power source to the water heater is shut off before draining water.

CAUTION: Hydrogen gas can be produced in a hot water system served by this heater that has not been used 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 a hot water faucet be opened for several minutes before using any electrical appliance 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 water begins to flow. There should be no smoking or open flame near the faucet at the time it is open.

WATER HEATER MODIFICATION & TAMPERING

DANGER

TAMPERING WITH THE THERMOSTAT, HEATER ELEMENTS, ELECTRICAL CONNECTIONS OR TEMPERATURE AND PRESSURE RELIEF VALVE IS DANGEROUS AND MAY RESULT IN SERIOUS INJURY OR DEATH. TAMPERING VOIDS ALL WARRANTIES. ONLY PROPERLY TRAINED, QUALIFIED SERVICE PERSONNEL SHOULD SERVICE THESE COMPONENTS. DO NOT ATTEMPT TO MODIFY OR CHANGE THIS WATER HEATER IN ANY WAY.

SEASONAL OPERATION

VACATION / FREEZING TEMPERATURES - If the water heater is to remain idle for 30 days or more and/or is subject to freezing temperatures while shut off, the water heater and piping should be drained (refer to Page 11) and the drain valve should be left open. Refer to Hydrogen Gas Warning.

CAUTION: EXPOSURE TO WATER

Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system which has been under water.

ANODE ROD

In each water heater there is installed at least one anode rod (see Parts section) for protection of the tank. Certain water conditions will cause a reaction between this rod and the water. Conditions are defined as smelly water and removal of the rod will void any warranties stated or implied. The parts list includes a special anode rod that can be ordered if odor and/or discoloration occur. However, this rod is only good to a certain point, after which we can only suggest that a water conditioning company be contacted to supply filtration equipment.

CONVERSION OR REWIRING BY UNAUTHORIZED PERSONS WILL VOID THE WARRANTY, CAN NULLIFY THE UNDERWRITER'S LABORATORIES (UL) CERTIFICATION OF THE WATER HEATER AND COULD RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY FOR WHICH THE MANUFACTURER CANNOT BE RESPONSIBLE.

READ THE LIMITED WARRANTY INCLUDED WITH THIS WATER HEATER FOR A FULL EXPLANATION OF THE LENGTH OF TIME THAT THE PARTS AND TANK ARE WARRANTED.

The following documents can be obtained from the manufacturer by calling your installer or plumbing contractor or by calling 1-888-883-0788.

- Residential Electric Limited Warranty
- Residential Electric Specification Sheet
- Residential Electric Heating Elements Parts List

HOW TO OBTAIN SERVICE ASSISTANCE

To obtain service on your water heater when adjustment, repair, or routine maintenance is required it is suggested that you first contact your installer, plumbing contractor or previously agreed upon service agency. In the event that the firm is unavailable, refer to your local telephone directory under the commercial listings or local utility for qualified service assistance.

TO OBTAIN WARRANTY SERVICE CALL 1-888-883-0788.

TROUBLESHOOTING CHART

Water heater service must only be performed by a qualified service technician.

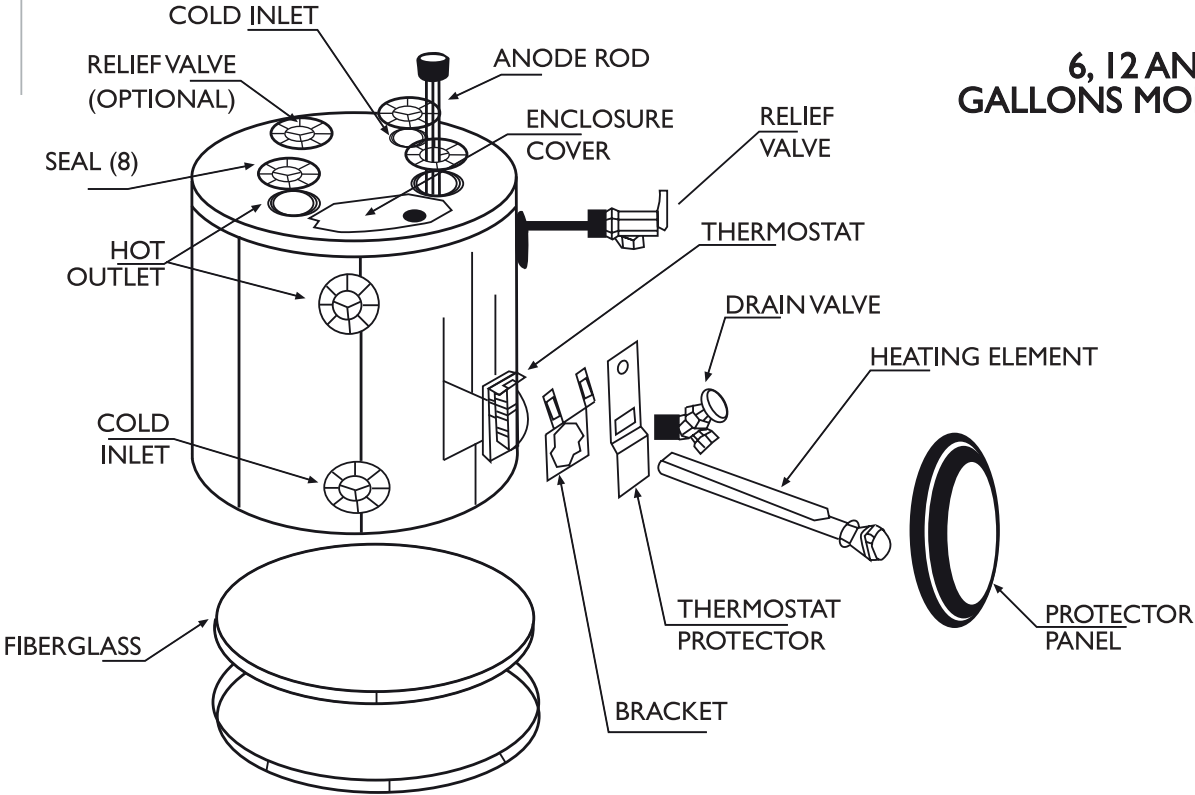
Troubleshooting Tips

Save time and money! Review the chart on this page first and you may not need to call for service.

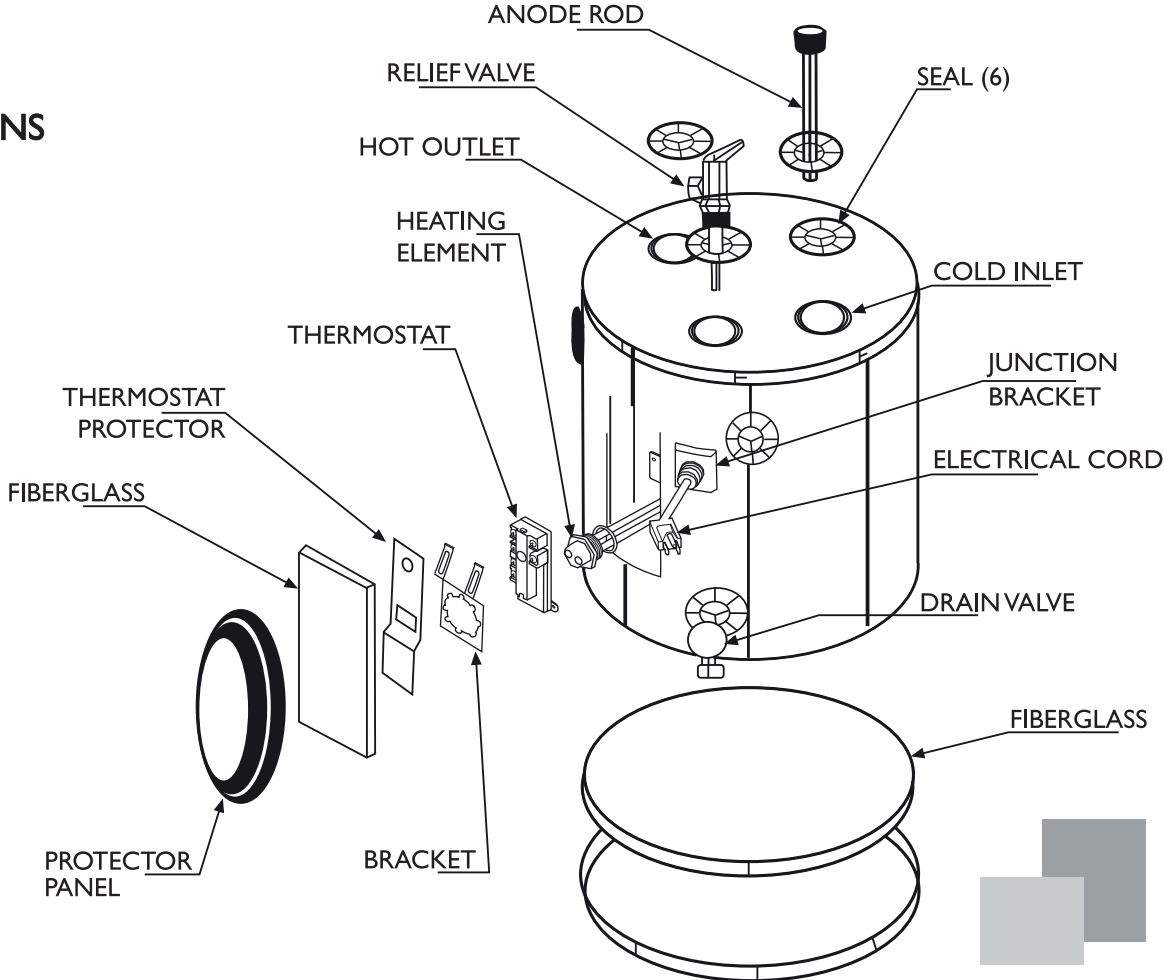
	Possible Causes	What To Do
Rumbling noise	Water conditions in your home caused a build up of scale or mineral deposits on the heating elements.	Remove and clean the heating elements.
Relief valve producing popping noise or draining	Pressure build up caused by thermal expansion to a closed system.	This is an unacceptable condition and must be corrected. Contact the water heater supplier or plumbing contractor on how to correct this. Do not plug the relief valve outlet.
Rattling noise during periods of water usage	Internal heat trap fittings in operation.	This is normal for heat trap fittings when in operation and does not indicate a need for service.
Not enough or no hot water	Water usage may have exceeded the capacity of the water heater.	Wait for the water heater to recover after an abnormal demand.
	A fuse is blown or a circuit breaker tripped.	Replace fuse or reset circuit breaker.
	Electric supply may be off.	Make sure electric supply to water heater and disconnect switch, if used, are in the ON position.
	The thermostat may be set too low.	See the Temperature regulation of the water heater section of this manual.
	Leaking or open hot water faucets.	Make sure all faucets are closed.
	Electric service to your home may be interrupted.	Contact the local electric utility.
	Improper wiring.	See the Installing the water heater section of this manual.
	Manual reset limit (ECO).	See the Temperature regulation of the water heater section of this manual.
	Cold water inlet temperature may be colder during the winter months.	This is normal. The colder inlet water takes longer to heat.
Water is too hot	The thermostat is set too high.	See the Temperature regulation of the water heater section of this manual.

PART REFERENCE ILLUSTRATION

6, 12 AND 19 GALLONS MODELS



2.5 GALLONS MODELS



American Standard[®]
Water Heaters

