

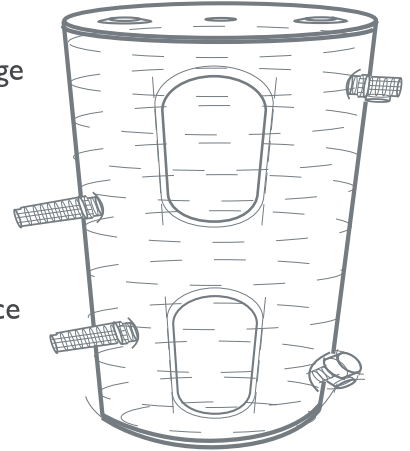
Water Heaters

American Standard Water Heaters

Operating and Installation Service Manual

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 shown is the same as the electric supply 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", on page 8).
- Turn off the electrical supply before servicing this water heater.
- SCALD INJURY is heightened by increased water temperatures. 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 has been 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 operating and service manual to be sure that 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 outlet 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.



CALL THIS TOLL FREE TELEPHONE NUMBER 1-888-883-0788 WITH ANY QUESTIONS DURING OR AFTER INSTALLATION.

TABLE OF CONTENTS

Cover page “a”	a
Table of contents	1
Safety information	2
General information	3
Insulation blanket	4
Location & installation	4
Condensation	4
Water lines & connections	5
Piping installation	5
Closed system / thermal expansion	5
Relief valves	6
The temperature & pressure relief valve	7
The discharge line	7
Recirculation lines	7
Turning on water to heater	7
Electrical diagram	8
Electrical connections	10
Thermostats & controls	11
Installation check list	11
Water temperature regulation	13
Safety controls	13
Heating elements	13
Maintenance of water heater system	14
Water heater sounds	14
Draining heater	14
Hydrogen gas	14
Water heater modification / tampering	14
Leakage checkpoints	15
Seasonal operation	16
Exposure to water	16
Anode rod	16
How to obtain service assistance	16
Troubleshooting chart	17
Part reference illustration	18



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

Read and refer to this owner’s manual.

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 that 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.

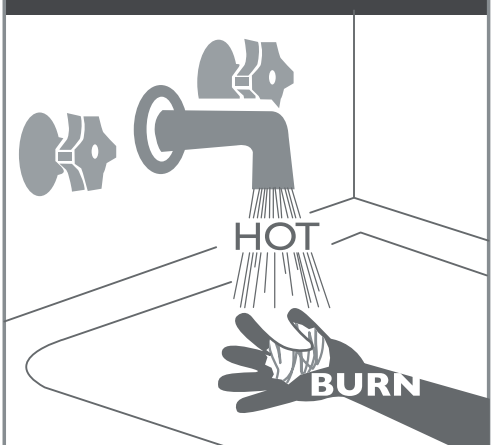
READ ALL INSTRUCTIONS BEFORE USING

⚠ 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 WATER 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 (drink-able) 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 valve. 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 gallon capacity, a brochure with generic earthquake bracing Instructions can be obtained from: 2808 Metropolitan Place Pomona, CA. 91767 USA 1-888-883-0788 or ask a water heater dealer.

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.

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

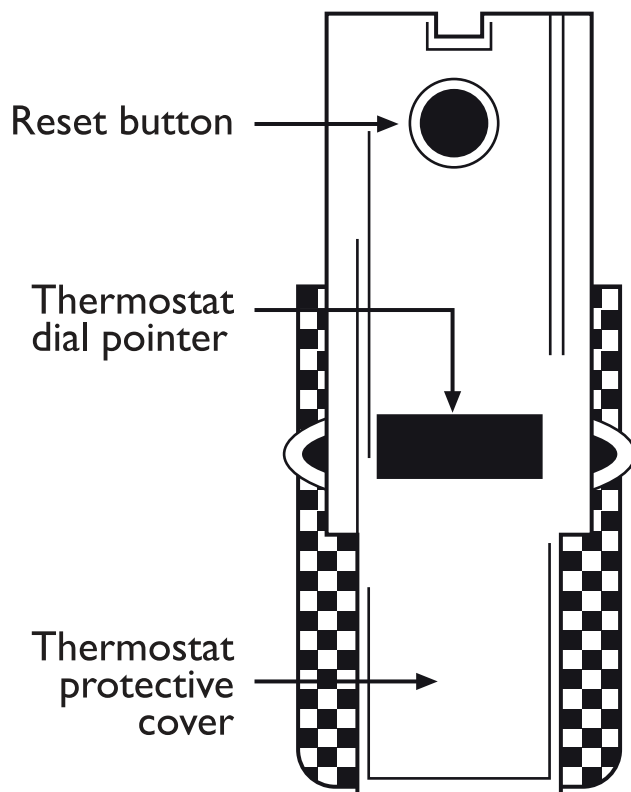
DO NOT INSTALL OUTDOORS. This water heater is certified for indoor installation only. Failure to follow these instructions could result in FIRE, PROPERTY DAMAGE, and/or PERSONAL INJURY OR DEATH.

⚠️ 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

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.

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



CONDENSATION

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.

2. WATER LINES AND CONNECTIONS



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.



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

SIDE OPTION INSTALLATION

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.

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

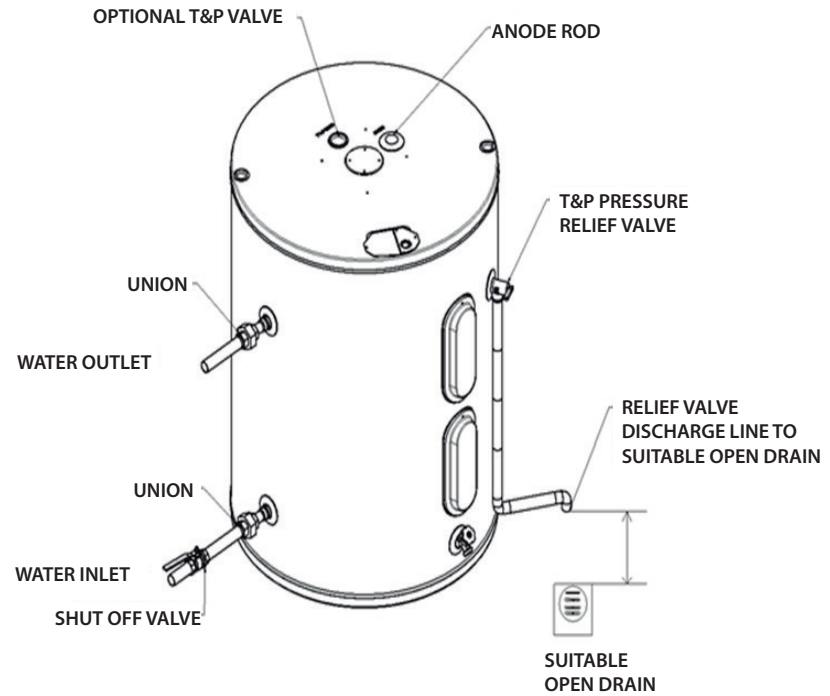


Figure 1

RELIEF VALVES

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 meets 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 the valve into opening provided and marked for this purpose on the water heater, and orient it or provide tubing so that discharge from the valve is 6 inches above, or at any distance below, the structural floor, and does not contact any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances.

Your local jurisdictional authority, while mandating the use of a temperature-pressure relief valve complying with ANSI Z21.22 • CSA 4.4 and ASME, may require a valve model different from the one furnished with the water heater.

Compliance with such local requirements must be satisfied by the installer or end user of the water heater with a locally prescribed temperature-pressure relief valve installed in the designated opening on the water heater in place of the factory furnished valve.

For safe operation of the water heater, the relief valve must not be removed from its designated opening or plugged. As an option the T&P relief valve could be placed at its designated opening on the top of the water heater (Refer to Part reference illustration).

If other components within the system have a lower working pressure, the relief pressure rating should be selected accordingly. The BTU rating of the valve must not be less than the input rating of the water heater.

Only a new temperature and pressure relief valve should be used with this water heater. Do not use an old or existing valve as it may not be adequate for the working pressure of the new water heater.

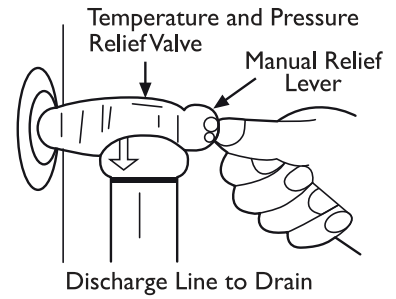
Piping used should be of a type approved for hot water distribution. The discharge line must be no smaller than the outlet of the valve and must pitch downward from the valve to allow complete drainage (by gravity) of the relief valve and discharge line. The end of the discharge line should not be threaded or concealed and should be protected from freezing. No valve of any type, restriction or reducer coupling should be installed in the discharge line.

Excessive length, over 30 feet, or use of more than four elbows can cause restriction and reduce the discharge capacity of the valve.

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.
- Must be of materials listed for hot water distribution.

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.



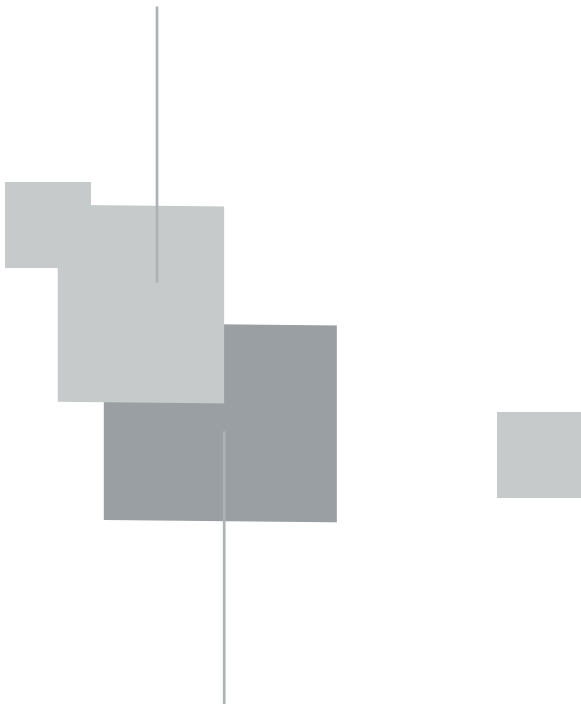
DANGER: DISCHARGING WATER MAY BE HOT AND CAN CAUSE SCALD INJURIES AND PROPERTY DAMAGE. DISCHARGE LINES MUST BE PROPERLY INSTALLED AND PIPED TO AN ADEQUATE DRAIN.

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 to the building.
- Must be capable of withstanding 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 water inlet connection using a tee.



5. TURNING ON WATER TO HEATER

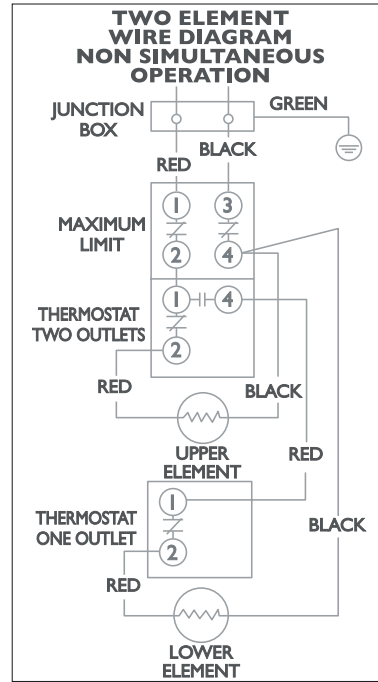
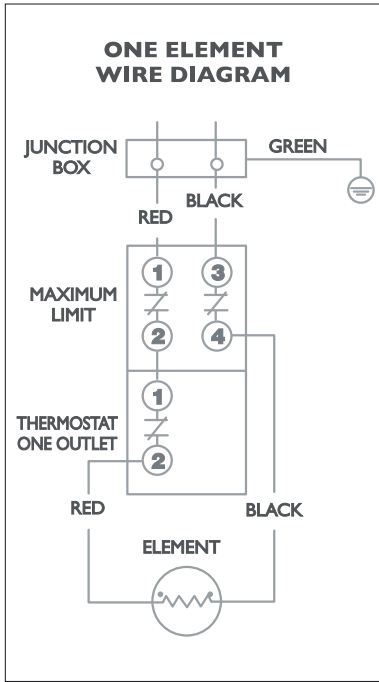
After piping and hook-ups are completed, open all hot water outlets. Open cold water inlet valve to fill tank. As each hot water outlet delivers water free from air, it can be shut off. Check the system for leaks.

* When side option piping is installed, loosen water outlet pipe plug on tank top to allow escape of trapped air 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.

INTENDED FOR CERTAIN MODELS ONLY

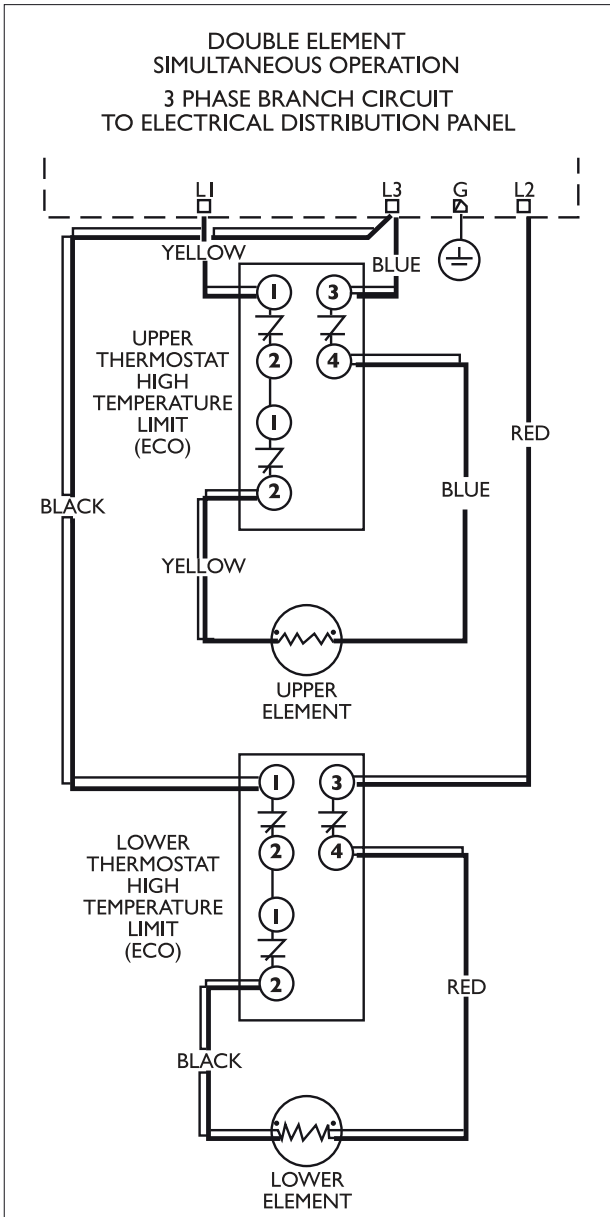
NOTICE: This guide recommends minimum branch circuit sizing and wire size based on National Electric Codes. Refer to wiring diagrams in this manual for field wiring connections.

ELECTRICAL DIAGRAM

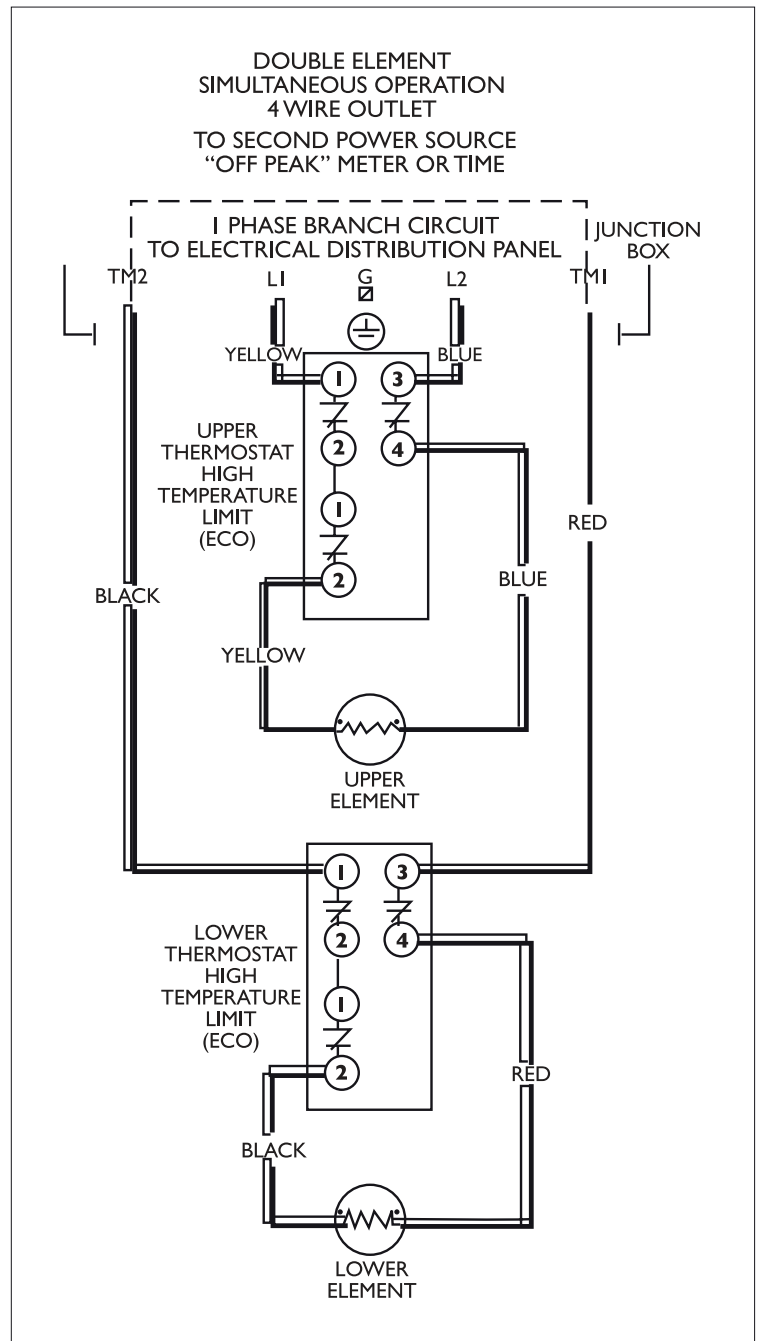


Total Water Heater Wattage	Phase	Recommended Over Current Protection (Fuse or Circuit Breaker) Amperage Rating				Copper Wire Size AWG Based on N.E.C. Table 310-16 (75°C)			
		208V	240V	277V	480V	208V	240V	277V	480V
3,000	1	20	20	15	15	12	12	14	14
	3	20	20	-	15	12	12	-	14
4,000	1	25	25	20	15	10	10	12	14
	3	25	25	-	15	10	10	-	14
4,500	1	30	25	25	15	10	10	10	14
	3	30	25	-	15	10	10	-	14
5,000	1	30	30	25	15	10	10	10	14
	3	30	30	-	15	10	10	-	14
5,500	1	35	30	25	15	8	10	10	14
	3	35	30	-	15	8	10	-	14
6,000	1	40	35	30	20	8	8	10	12
	3	35	30	-	15	8	10	-	14
8,000	1	50	45	40	25	8	8	8	10
	3	45	40	-	20	8	8	-	12
9,000	1	-	50	45	25	-	8	8	10
	3	50	45	-	25	8	8	-	10
10,000	1	-	-	50	30	-	-	8	10
	3	-	50	-	25	-	8	-	10
11,000	1	-	-	50	30	-	-	8	10
	3	-	50	-	25	-	8	-	10
12,000	1	-	-	-	35	-	-	-	8
	3	-	-	-	30	-	-	-	10

ELECTRICAL DIAGRAM



CAUTION: If wiring from your fuse box or circuit breaker box was aluminium for your old water heater, replace it with copper wire. If you wish to reuse the existing aluminium wire, have the connection at the water heater made by a competent electrician.



BRANCH CIRCUIT SIZING AND WIRE SIZE GUIDE

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.

ELECTRICAL CONNECTIONS

⚠ 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 CAN 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.

When making the electrical connections, always make sure:

- 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 the 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.

A. Provide a separate fused disconnect switch for each water heater.

B. Open cover door of the wiring connection box.

C. 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 occur, local ordinances or your utility company may necessitate, an increase in size.

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


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 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 panels cover and adjust each surface thermostat to the desired temperature.


WARNING

Make sure the thermostat is flush against the tank, the terminal cover is in place, and the insulation is replaced. Failure to do so can result in DEATH, SERIOUS BODILY INJURY, AND/OR PROPERTY DAMAGE.

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

Each water heater has built in Energy Cut Off devices(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. To reset the high limit, follow the written instructions shown on page 13.

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

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

INSTALLATION CHECK LIST

A. Water Heater Location

- Close to area of heated water demand.
- Located indoors and protected from freezing temperatures.
- Area free of flammable vapors.
- Provisions made to protect area from water damage.
- Sufficient room to service water heater.

B. Water Supply

- Water heater completely filled with water.
- Water heater and piping air vented.
- Water connections tight and free of leaks.

C. Relief Valve

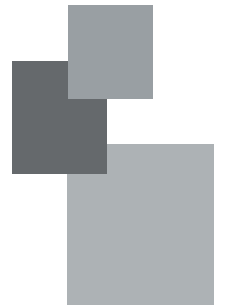
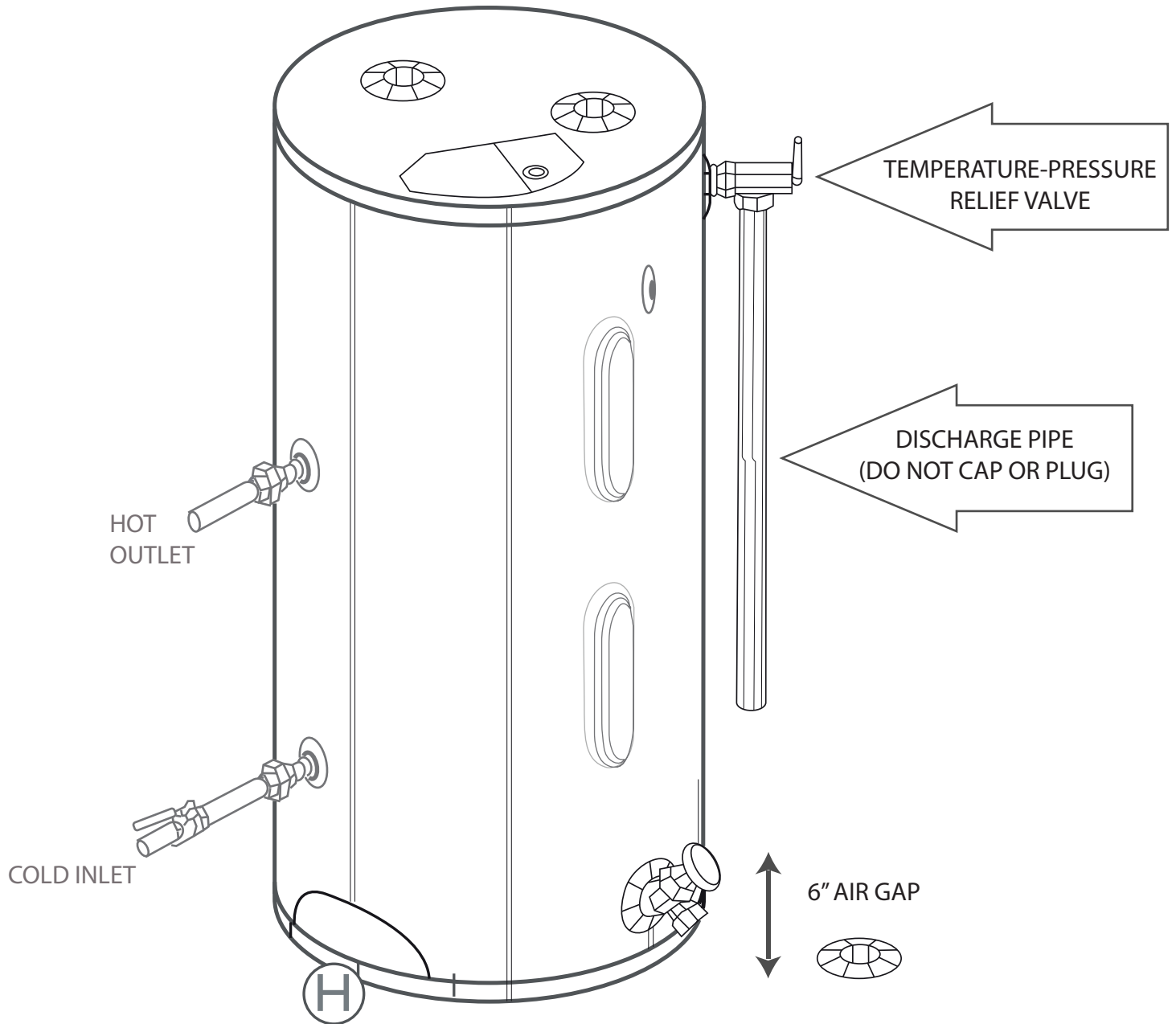
- Temperature and Pressure Relief Valve properly installed and discharge line run to open drain.
- Discharge line protected from freezing.

D. Wiring

- Power supply voltage agrees with water heater rating plate.
- Branch circuit wire and fusing or circuit breaker of proper size.
- Electrical connections tight and unit properly grounded.

INSTALLATION CHECK LIST

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



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: 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)

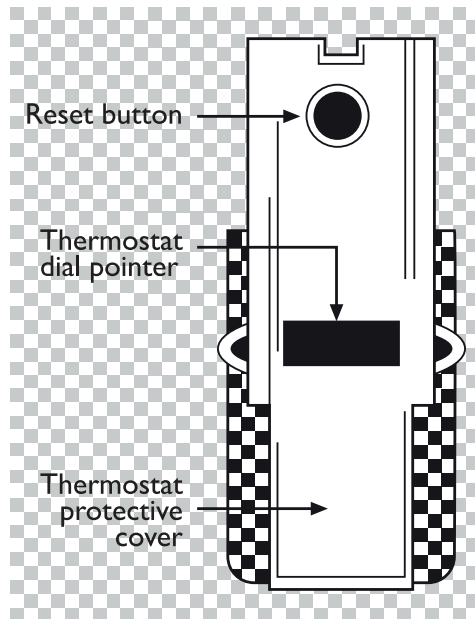
During low demand periods when hot water is not being used, a lower thermostat setting will reduce energy usage and may satisfy your normal hot water requirements. If hot water use is expected to be more than normal, a higher thermostat setting may be required to meet the increased demand.

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

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(s) 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

SAFETY CONTROLS

The water heater is equipped with combination thermostat and temperature limiting controls (ECO) that are located above the heating element in contact with 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.

NOTE: Water temperature ranges of 120° - 140°F recommended by most dishwasher manufacturers.

CAUTION: The cause of the high temperature conditions must be investigated by a qualified service technician and corrective actions must be taken before placing the water heater into 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.



WARNING: HOUSEHOLDS WITH SMALL CHILDREN, ELDERLY, IMPAIRED OR DISABLE MEMBERS AND ANYONE 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.

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.

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

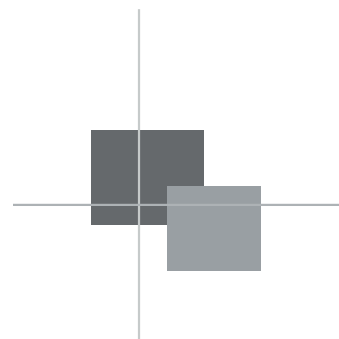
WARNING

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.

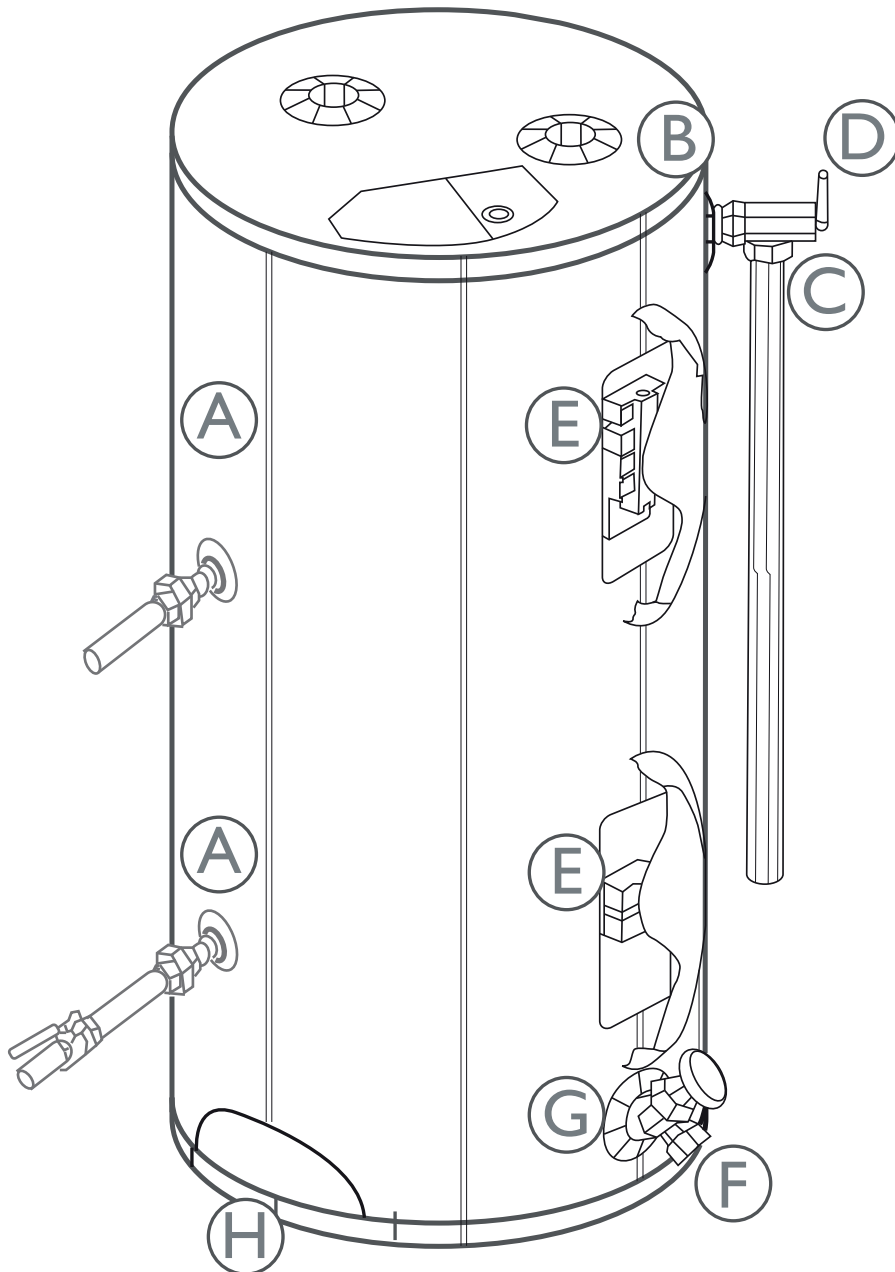


WATER HEATER MODIFICATION TAMPERING

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.

LEAKAGE CHECKPOINTS



- A. * Condensation may be seen on pipes in humid weather or pipe connections may be leaking.
- B. The primary anode rod may be leaking.
- C. Small amounts of water from temperature-pressure relief valve may be due to thermal expansion or high water pressure in your area.
- D. *The temperature-pressure relief valve may be leaking at the tank fitting.
- E. The elements may be leaking at the tank fitting. Turn electrical power "OFF", remove access panels and insulation block and pad. If leaking is visible around element, follow proper draining instructions and remove element. Reposition or replace gasket on element. Place element into opening and tighten securely. Then follow "Filling the Water Heater" instructions in the "Installation Instructions" section.
- F. Water from drain valve may be due to the valve being opened slightly.
- G. *The drain valve may be leaking from the tank fitting.

H. *Water in the water heater bottom or on the floor may be from condensation, loose connections or the temperature-pressure relief valve. **DO NOT** replace the water heater until full inspections of all possible water sources are determined and necessary corrective steps have been taken.

NOTE: *To check where threaded portion enters tank, insert cotton swab between jacket opening and fitting. If cotton is wet, follow "Draining" instructions in the "Service and Adjustment" 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 "Installation Instructions" section.

SEASONAL OPERATION

VACATION/FREEZING TEMPERATURES - If the water heater remains idle for 30 days or longer and/or is subject to freezing temperatures while shut off, the water heater and piping should be drained (refer to Page 14) 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 DIAL: 1-888-883-0788.

TROUBLESHOOTING CHART

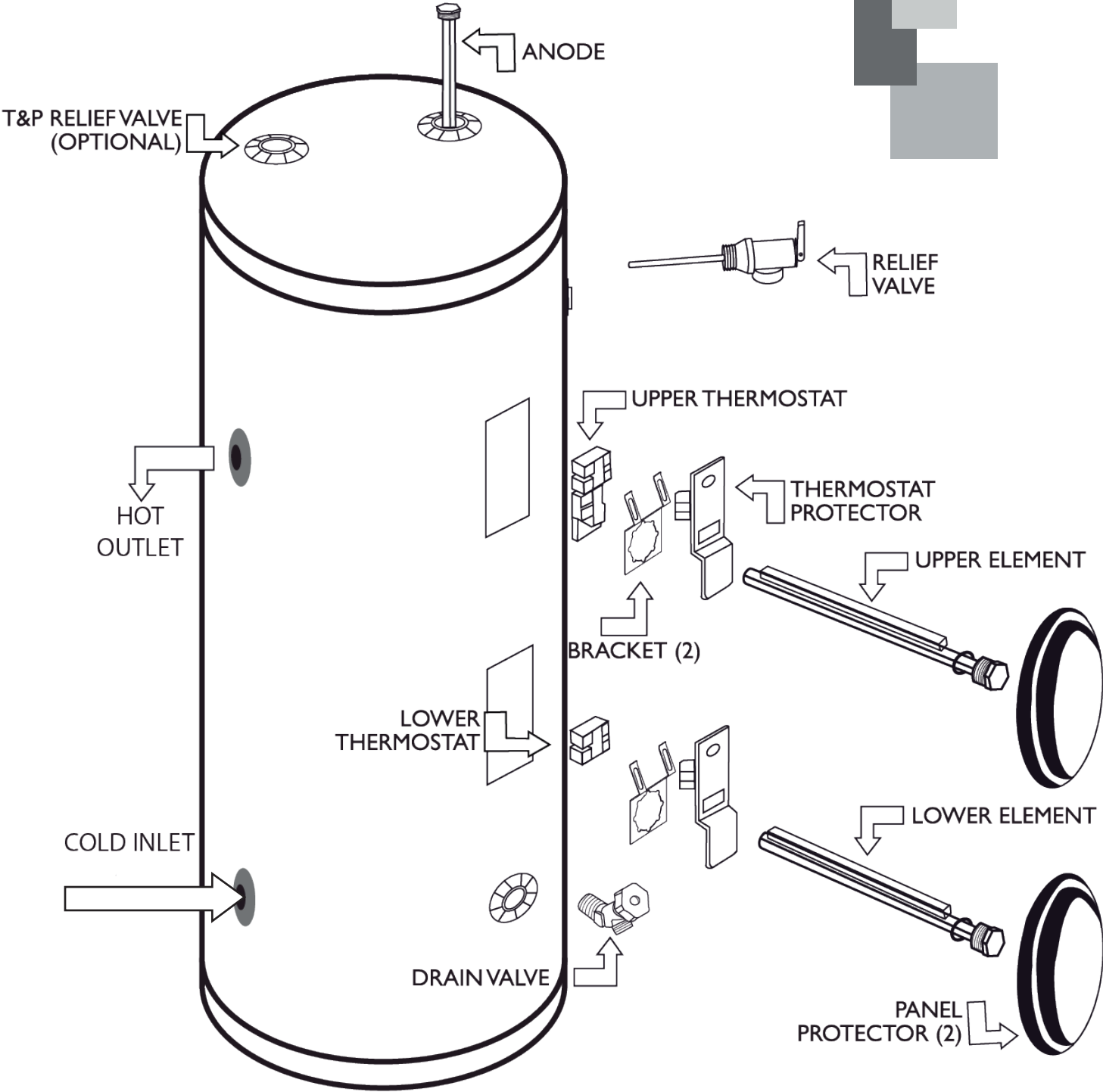
Water heater service must only be performed by a qualified service technician.

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 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.
Water is too hot	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.
	The thermostat is set too high.	See the Temperature regulation of the water heater section of this manual.

PART REFERENCE ILLUSTRATION



American Standard[®]
Water Heaters

