Everlast Electric Water Heater

INSTALLATION

START-UP

MAINTENANCE

PARTS

Everlast Water Heater Models

EV-6 / EV-12 / EV-20 / EV-30
EV-30LB / EV-45LB / EV-50 / EV-80

California Proposition 65 Warning: This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

NOTICE: HTP reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

The surfaces of these products contacted by consumable water contain less than 0.25% lead by weight, as required by the Safe Drinking Water Act, Section 1417.

NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.
The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels, or to important product information.

**DANGER**
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING**
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION**
Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**CAUTION**
Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**FOREWORD**
This manual is intended to be used in conjunction with other literature provided with the electric water heater. This includes all related control information. It is important that this manual, all other documents included with this system, and additional publications be reviewed in their entirety before beginning any work.

Installation should be made in accordance with the regulations of the Authority Having Jurisdiction, local code authorities, and utility companies which pertain to this type of water heating equipment.

**FOR THE INSTALLER**

**WARNING**
This manual must only be used by a qualified heating installer/service technician. Read all instructions in this manual before installing. Perform steps in the order given. Failure to comply could result in substantial property damage, severe personal injury, or death.

This water heater must be installed by qualified and licensed personnel. The installer should be guided by the instructions furnished with the water heater, and with local codes and utility company requirements.

**INSTALLATIONS MUST COMPLY WITH:**
Local, state, provincial, and national codes, laws, regulations and ordinances.

The latest version of the National Electrical Code, NFPA No. 70.

**TABLE OF CONTENTS**

**PART 1 – GENERAL SAFETY INFORMATION**

A. PRECAUTIONS .................................................................................................................................................. 3
B. WHEN SERVICING THE WATER HEATING SYSTEM .................................................................................. 4
C. HEATER WATER .............................................................................................................................................. 4
D. INSTALLATIONS IN THE STATE OF CALIFORNIA ..................................................................................... 4
E. WATER CHEMISTRY ..................................................................................................................................... 4

**PART 2 – PREPARE THE WATER HEATER**

A. SPECIFICATIONS AND PERFORMANCE RATINGS ................................................................................... 4
PART 1 – GENERAL SAFETY INFORMATION

WARNING

INSTALLER – Read all instructions in this manual before installing. Perform steps in the order given.

USER – This manual is for use only by a qualified heating installer/service technician. Have this water heater serviced/inspected by a qualified service technician annually.

FAILURE TO ADHERE TO THE GUIDELINES ON THIS PAGE AND HAVE THIS WATER HEATER SERVICED/INSPECTED ANNUALLY CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.

A. PRECAUTIONS

This water heater is approved for indoor installations only. Clearance to combustible materials: 0” top, bottom, sides and back. Heater must have room for service: 24” front and 6” sides are minimum recommended service clearances. (A combustible door or removable panel is acceptable front clearance.) This water heater has been approved for closet installation, and installation on combustible flooring. Do not install this water heater directly on carpeting.

NOTE: If the heater is exposed to the following, do not operate until all corrective steps have been made by a qualified serviceman:

- FIRE
- DAMAGE
- WATER

Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

WARNING

DO NOT USE THIS WATER HEATER IF ANY PART HAS BEEN SUBMERGED IN WATER. Immediately call a qualified service technician. The water heater MUST BE replaced if it has been submerged. Attempting to operate a water heater that has been submerged could create numerous harmful conditions, such as a potential gas leakage causing a fire and/or explosion, or the release of mold, bacteria, or other harmful particulates into the air. Operating a previously submerged water heater could result in property damage, severe personal injury, or death.

NOTE: Water heater damage due to flood or submersion is considered an Act of God, and IS NOT covered under product warranty.
Be sure to disconnect electrical power before performing service. Failure to do so could result in an electrical shock, property damage, serious personal injury, or death.

This water heater is not designed or intended for use in space heating applications. Failure of a water heater due to unapproved use IS NOT covered by the warranty.

**B. WHEN SERVICING THE WATER HEATING SYSTEM**
- To avoid electric shock, disconnect electrical supply before performing maintenance.
- To avoid severe burns, allow heater to cool before servicing.

**C. HEATER WATER**
- Do not use petroleum-based cleaning or sealing compounds in a water heating system. Gaskets and seals in the system may be damaged. This can result in substantial property damage.
- Do not use “homemade cures” or “heater patent medicines”. Damage to heater, substantial property damage, and/or serious personal injury may result.

**D. 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: Office of the State Architect, 400 P Street, Sacramento, CA 95814, or you may call 916-324-5315, or ask a water heater dealer. However, applicable local codes shall govern installation. For residential water heaters of a capacity greater than 52 gallons, consult the local building jurisdiction for acceptable bracing procedures.

**E. WATER CHEMISTRY**
- Sodium less than 20mGL.
- Water pH between 6.0 and 8.0
  - Maintain water pH between 6.0 and 8.0. Check with litmus paper or have it chemically analyzed by water treatment company.
  - If the pH differs from above, consult local water treatment company for treatment needed.
- Hardness less than 7 grains
  - Consult local water treatment companies for unusually hard water areas (above 7 grains hardness).
- Chlorine concentration less than 100 ppm
  - Using chlorinated fresh water should be acceptable as levels are typically less than 5 ppm.
  - Do not connect the boiler to directly heat swimming pool or spa water.
  - Do not fill boiler or operate with water containing chlorine in excess of 100 ppm.

**PART 2 – PREPARE THE WATER HEATER**

**CAUTION**

Failure of an electric element due to lime scale build-up on the heating surface, low pH, or other imbalance IS NOT covered by the warranty.

**UNCRATING HEATER** – Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee. Remove all sides of the shipping crate to allow the heater to be moved into its installation location.
CAUTION

COLD WEATHER HANDLING – If the heater has been stored in a very cold location (BELOW 0°F) before installation, handle with care until the plastic components come to room temperature.

A. SPECIFICATIONS AND PERFORMANCE RATINGS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>GAL. CAP.</th>
<th>WATTAGE</th>
<th>VOLTAGE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>INLET / OUTLET</th>
<th>APPROX. SHIPPING WEIGHT (LBS.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV-6</td>
<td>6</td>
<td>1500*</td>
<td>120*</td>
<td>4 1/2&quot;</td>
<td>9 1/4&quot;</td>
<td>16 1/2&quot;</td>
<td>14 1/4&quot;</td>
<td>1/2&quot;</td>
<td>19</td>
</tr>
<tr>
<td>EV-12</td>
<td>12</td>
<td>1500*</td>
<td>120*</td>
<td>3 1/2&quot;</td>
<td>12 1/4&quot;</td>
<td>19&quot;</td>
<td>16 1/4&quot;</td>
<td>1/2&quot;</td>
<td>26</td>
</tr>
<tr>
<td>EV-20</td>
<td>20</td>
<td>1500*</td>
<td>120*</td>
<td>4 3/4&quot;</td>
<td>22&quot;</td>
<td>27&quot;</td>
<td>19 1/4&quot;</td>
<td>3/4&quot;</td>
<td>41</td>
</tr>
<tr>
<td>EV-30</td>
<td>30</td>
<td>4500</td>
<td>240</td>
<td>4 3/4&quot;</td>
<td>34 3/4&quot;</td>
<td>39 1/2&quot;</td>
<td>19 1/4&quot;</td>
<td>3/4&quot;</td>
<td>55</td>
</tr>
<tr>
<td>EV-30LB</td>
<td>30</td>
<td>4500</td>
<td>240</td>
<td>4 3/4&quot;</td>
<td>34 3/4&quot;</td>
<td>42&quot;</td>
<td>23 1/4&quot;</td>
<td>3/4&quot;</td>
<td>65</td>
</tr>
<tr>
<td>EV-45LB</td>
<td>45</td>
<td>4500</td>
<td>240</td>
<td>4 3/4&quot;</td>
<td>34 3/4&quot;</td>
<td>42&quot;</td>
<td>23 1/4&quot;</td>
<td>3/4&quot;</td>
<td>86</td>
</tr>
<tr>
<td>EV-50</td>
<td>50</td>
<td>4500</td>
<td>240</td>
<td>4 3/4&quot;</td>
<td>56&quot;</td>
<td>63&quot;</td>
<td>19 1/4&quot;</td>
<td>1&quot;</td>
<td>90</td>
</tr>
<tr>
<td>EV-80</td>
<td>80</td>
<td>4500</td>
<td>240</td>
<td>5 1/2&quot;</td>
<td>64 1/4&quot;</td>
<td>72&quot;</td>
<td>23 1/4&quot;</td>
<td>1&quot;</td>
<td>132</td>
</tr>
</tbody>
</table>

Table 1 – Specifications and Dimensions - *Available with Special Order 240V/4500W Element – Part # E1001

B. LOCATING THE WATER HEATER

CAUTION

Locate the water heater where any leakage from the relief valve, related piping, tank, or connections will not result in damage to surrounding areas or lower floors of the building. The water heater should be located near a floor drain, or installed in a drain pan. HTP WILL NOT be held liable for leakage damages.
WARNING
Incorrect ambient conditions can lead to damage to the heating system and put safe operation at risk. Ensure that the installation location adheres to the information included in this manual. Failure to do so could result in property damage, serious personal injury, or death.

CAUTION
Failure of water heater or components due to incorrect operating conditions IS NOT covered by product warranty.

1. Installation Area (Mechanical Room) Operating Conditions
   - Ensure ambient temperatures are higher than 32°F/0°C and lower than 104°F/40°C.
   - Avoid continuously high levels of humidity
   - Never close existing ventilation openings

CAUTION
The service life of the water heater’s exposed metallic surfaces, such as the junction box, as well as internal surfaces, such as the heating elements, are directly influenced by proximity to damp and salty marine environments. In such areas, higher concentration levels of chlorides from sea spray coupled with relative humidity can lead to degradation of water heater components.

WARNING
This water heater is certified for indoor installations only. Do not install the water heater outdoors. Outdoor installations ARE NOT covered by warranty. Failure to install this water heater indoors could result in substantial property damage, severe personal injury, or death.

2. Check for nearby connections to:
   - System water piping
   - Electrical power

Choose a location for the water heater as centralized to the piping system as possible.

3. Check area around water heater. Remove any combustible materials, gasoline, and other flammable liquids.

DANGER
This water heater must not be located near flammable liquids such as gasoline, butane, liquefied propane, adhesives, solvents, paint thinners, etc., as the controls of this water heater could ignite these vapors and cause an explosion, resulting in property damage, severe personal injury, or death.

4. If the water heater is to replace an existing water heater, check for and correct any existing system problems, such as:
   - System leaks
   - Location that could cause the system and water heater to freeze and leak.
   - Incorrectly-sized expansion tank

5. All piping should be insulated. Additionally, place the water heater so that the drain, controls, and inlets/outlets are easily accessible.

If you do not provide the minimum clearances shown, it might not be possible to service the heater without removing it from the space.

NOTE: When installing in a zero clearance location, it may not be possible to read or view some product labeling. It is recommended to make note of the water heater model and serial number.

6. This water heater must be installed vertical on a level surface.

Figure 2 – Recommended Clearance
PART 3 – HEATER PIPING

A. PLUMBING

It is mandatory that all plumbing be done in accordance with federal, local, and state plumbing codes and practices. Failure to properly install the water heater WILL VOID the warranty. It is also necessary to use both thread tape and pipe dope on all mechanical plumbing connections.

Use unions on the hot and cold water connections and the relief valve discharge line, so that the heater may be easily disconnected for servicing when necessary.

**CAUTION**

Use two wrenches when tightening water piping at the heater. Use one wrench to prevent the heater return and supply lines from turning. Failure to prevent piping connection from turning could cause damage to heater components.

**CAUTION**

Dielectric unions or galvanized steel fittings must not be used in a system with this water heater. Use only copper or brass fittings. Teflon thread sealant must be used on all connections.

1. Connect the cold water supply line to the connection marked “COLD” near bottom of heater. Refer to “Typical Installation”, Figure 3.

2. Install a shut-off valve and a drain valve (field supplied, not supplied with the heater) in the cold water line near the heater.

3. Connect hot water line to the connection marked “HOT” on side near the top of the heater.

4. An opening is provided near the top of the heater for installation of a Temperature and Pressure Relief Valve (T&P Valve).

B. TEMPERATURE AND PRESSURE RELIEF VALVE

**NOTE:** For protection against excessive pressures and temperatures in this water heater, install temperature and pressure protective equipment as required by local codes, but not less than a combination T&P valve meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22B / CSA 4.4-M99, by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment and materials.

Install the T&P valve into the opening provided and marked for this purpose on the water heater so that discharge water from the valve will not come in contact with any live electrical parts.

**WARNING**

Do not thread a cap or plug into the relief valve under any circumstances! Explosion and property damage, serious injury, or death may result.

**WARNING**

To avoid water damage or scalding due to relief valve operation:

- Discharge line must be connected to relief valve outlet and run to a safe place of disposal. Terminate the discharge line in a manner that will prevent possibility of severe burns or property damage should the relief valve discharge.
- Discharge line must be as short as possible and the same size as the valve discharge connection throughout its entire length.
- Discharge line must pitch downward from the valve and terminate at least 6” above the floor drain, making discharge clearly visible.
- The discharge line shall terminate plain, not threaded, with a material serviceable for temperatures of 375°F or greater.
- Do not pipe discharge to any location where freezing could occur.
- No shut-off valve may be installed between the relief valve and heater or in the discharge line. Do not plug or place any obstruction in the discharge line.
- Test the operation of the relief valve after filling and pressurizing the system by lifting the lever. Make sure the valve discharges freely. If the valve fails to operate correctly, immediately replace with a new properly rated relief valve.
- Test T&P valve at least once annually to ensure the waterway is clear. If valve does not operate, turn the heater “off” and call a plumber immediately.
- Take care whenever operating relief valve to avoid scalding injury or property damage.

FAILURE TO COMPLY WITH THE ABOVE GUIDELINES COULD RESULT IN FAILURE OF RELIEF VALVE OPERATION, RESULTING IN POSSIBLITY OF SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.
C. FILLING THE HEATER

**CAUTION**

When filling the water heater, open a hot water tap to release air in the tank and piping. Failure to do so could lead to improper water heater operation.

Make certain that the field installed drain valve is completely closed. Open the shut-off valve in the cold water supply line. Open the hot water faucets to allow air to vent from the heater and piping. Allow sufficient time for the heater to completely fill with water.

D. SCALDING

<table>
<thead>
<tr>
<th>APPROXIMATE TIME / TEMPERATURE RELATIONSHIPS IN SCALDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>120°F</td>
</tr>
<tr>
<td>125°F</td>
</tr>
<tr>
<td>130°F</td>
</tr>
<tr>
<td>135°F</td>
</tr>
<tr>
<td>140°F</td>
</tr>
<tr>
<td>145°F</td>
</tr>
<tr>
<td>150°F</td>
</tr>
<tr>
<td>155°F</td>
</tr>
</tbody>
</table>

Table 2

This heater can deliver scalding water. Be careful whenever using hot water to avoid scalding injury. Certain appliances, such as dishwashers and automatic clothes washers may require increased water temperature. By setting the thermostat on this heater to obtain the increased water temperature required by these appliances, you may create the potential for scald injury.

To protect against injury, you should install a mixing valve in the water system. This valve will reduce point of discharge temperature by mixing cold and hot water in branch supply lines. Such valves are available from your local plumbing supplier.

Table 2 details the relationship of water temperature and time with regard to scald injury and may be used as a guide in determining the safest water temperature for your applications.

**WARNING**

A temperature limiting or mixing valve is not entirely necessary, but recommended in installations servicing disabled or elderly persons, or children. Take extreme caution to avoid scalding when temperature limiting or mixing valves are not used.

E. POTABLE EXPANSION TANK

A potable hot water expansion tank is required to offset heated water expansion. If there is a back flow preventer or any other type of no return or check valve on the system, a thermal expansion tank is mandatory. The expansion tank must be sized for the entire water volume of the hot water system. A weeping relief valve indicates the need for an expansion tank.
Figure 3 – Piping Detail - NOTE: Drawing is meant only to demonstrate system piping concept. The installer is responsible for all equipment and detailing required by local codes.
Figure 4 – Mobile Home and Point of Use Piping Detail - NOTE: Drawing is meant only to demonstrate system piping concept. The installer is responsible for all equipment and detailing required by local codes.
PART 4 – HEATER WIRING

This unit is factory wired to a junction box on top of the water heater. A 4 x 4 x 2 junction box is located on top of the unit for field wiring connection. These heaters are equipped and wired as standard 120 volt AC (for point of use heaters) and 240 volt AC (for dual element heaters). The voltage requirement and dedicated wattage load for the heater is specified on the rating label. A minimum 30 amp circuit is required to connect the water heater. Consult your local power company to determine if your electrical service is adequate for the additional load of the heater.

Refer to the wiring diagrams below for field connections. To make service connections to the 120 volt model, the white wire must be connected to the neutral leg. 240V electrical installation should be done by a qualified licensed electrician or by your local electric utility. All wiring must conform to local code and the National Electric Code. Grounding can be accomplished by using approved conduit and fittings or other approved conductive material. A grounding wire is provided on the junction bracket. This grounding wire must be used in the installation.

Figure 5 - Wiring Detail – LP-04-E

⚠️ WARNING

Be sure to ground the water heater. The preferred way to ground is with rigid metal conduit between the main panel and the water heater junction box with approved end fittings (check codes on the use of flexible conduit). If making a separate ground, a green ground wire is provided in the water heater junction box. Replace the junction box cover and insulation after you have made the wiring connections.
PART 5 – OPERATING THE HEATER

**CAUTION**

Tank must be full of water before power is turned on. Heating elements will be damaged if energized for even a short time while tank is dry. Failures due to “dry-firing” are NOT covered by warranty.

After water and electrical connections have been made and tank is filled with water, turn on power to heater. The heater is now in operation.

**A. COMBINATION THERMOSTAT AND HIGH LIMIT CONTROL (ECO)**

This heater is equipped with a combination Thermostat – High Limit Control (ECO), which is located above the heating element, above the upper element on dual element heaters. If for any reason the water temperature becomes excessively high, the ECO breaks the circuit to the heating element. Once the switch opens, it must be reset manually. However, THE CAUSE OF THE OVER TEMPERATURE CONDITION MUST BE CORRECTED FIRST.

**B. THERMOSTAT ADJUSTMENT AND ECO RESET**

There are two thermostats on dual element heaters and one for point of use units. These are set to 120°F to reduce the risk of scald injury. This temperature is satisfactory for average household use.

If temperature adjustment is necessary, TURN OFF POWER TO HEATER, remove black access cover and insulation. The thermostat protective cover should NOT be removed. Set temperature indicator to desired temperature. Replace insulation and the black access cover. Turn on power to the heater. See below for Thermostat adjustment/ECO reset.

**IF YOU NEED TO ADJUST THERMOSTAT(S) OR RESET THE ECO (RED RESET BUTTON):**

STEP #1 – Turn off power to the water heater by removing fuse or shutting off at circuit breaker.

STEP #2 – Remove the two screws that hold the access cover in place. Remove the cover.

STEP #3 – Remove the insulation to expose the control.

STEP #4 – Reset the ECO by pushing in the red button marked “RESET”. Adjust the temperature by turning the white adjustment knob.

STEP #5 – Replace the insulation.

**DANGER**

Failure to disconnect power from water heater before attempting to adjust or reset the thermostat(s) will result in property damage, severe personal injury, or death due to electric shock.

![Figure 6 – Thermostat Adjustment](image)

**WARNING**

Risk of scald injury increases as you increase water temperature.

**WARNING**

Failure to replace insulation could result in property damage, severe personal injury, or death.

STEP #6 – Reattach the access cover with the two screws.

STEP #7 – Restore power by replacing the fuse or turning on the circuit breaker.

**C. HEATING ELEMENT REPLACEMENT PROCEDURE**

**WARNING**

If the heating elements need replacement, it is very important to use the same voltage, wattage, and construction. The element sheath must be incoloy and the hex plug must be made of stainless steel.

LP-04 REV. 4.15.14
**WARNING**

Completely drain the water heater before removing and replacing the heating element. Failure to do so will result in a leakage of water and property damage, and could possibly result in moderate to severe personal injury or death.

**WARNING**

Water drained from the water heater may be scalding hot. Take care to avoid scalding. Wear gloves and safety glasses, and direct water to a safe drainage location. Failure to comply with this warning could result in substantial property damage, severe personal injury, or death due to scalds.

**STEP #1** – Turn off power and remove wires from element.

**DANGER**

Failure to disconnect power from water heater before attempting heating element replacement will result in property damage, severe personal injury, or death due to electric shock.

**CAUTION**

DO NOT replace heating element with a generic heating element. Only HTP heating elements are approved for use with this water heater. Failure to follow this warning will result in premature product failure and VOID the warranty.

**STEP #2** – Remove the element with a 1 ½” socket wrench.

**STEP #3** – Ensure thread and opening are completely free of debris.

**STEP #4** – Put a small amount of NSF approved pipe dope on the threads for lubrication.

**STEP #5** – Screw the element clockwise into tank, and tighten with the 1 ½” socket wrench. Be sure O-ring seats properly.

**STEP #6** – Refill the tank with cold water.

**STEP #7** – Pressure check the tank for leaks around element. If no leaks are found, reconnect wires to the element.

**STEP #8** – Turn power back on to the water heater.

**CAUTION**

Failure to refill the tank before restoring power to the water heater will result in damage to the heating element and property damage. Such damages ARE NOT covered by warranty.

**PART 6 – MAINTENANCE**

**MAINTENANCE CONSIDERATIONS**

- To avoid electric shock, disconnect electrical supply before performing maintenance.
- To avoid severe burns, allow heater to cool before performing maintenance.

**NOTE:** In addition to the routine maintenance detailed in this manual, this water heater should be inspected annually by a qualified service technician to assure that all the equipment is operating safely and efficiently. The owner should make necessary arrangements with a qualified heating contractor for periodic maintenance of the heater. Installer must also inform the owner that lack of proper care and maintenance may result in a hazardous condition, premature heater failure, and void the warranty.

Routine preventative maintenance ensures the water heater operates safely and efficiently over its service life. **The Owner/User** may perform the maintenance activities described below.
Monthly (Every two weeks in hard water locations)

It is recommended that a few quarts of water be drained from the heater. This will flush sediment deposits from the bottom of the heater and lengthen the heater’s service life. Turn off power to the heater during flushing operation, so the element(s) will not be damaged.

**CAUTION**

Failure to shut off power to the heater when draining may damage the heating elements. Operating a partially filled/empty water heater could lead to damage from “dry-firing”. Failures due to such damage are NOT covered by warranty.

To flush the tank, attach a hose to the field installed drain valve in the cold water supply line. Close supply line shut-off valve. Open drain line valve and hot water faucet(s) to vent heater while draining. Direct the flow of water to a drain or bucket where it will not cause damage.

**WARNING**

Water drained from the water heater may be scalding hot. Take care to avoid scalding. Wear gloves and safety glasses, and direct water to a safe drainage location. Failure to comply with this warning could result in substantial property damage, severe personal injury, or death due to scalds.

After flushing until water runs clear, operation is complete. Close drain valve and reopen supply line shut-off valve. Make certain that heater is completely full of water before restoring power to the heater.

**Periodically (At least twice a year)**

Check around the water heater and related plumbing for leaks. If the combination temperature and pressure relief valve discharges periodically, or water is leaking from around the heating element, there may be a problem with your water system. DO NOT ATTEMPT TO REPAIR LEAKS YOURSELF! Contact a qualified service contractor for assistance.

Check the area around the water heater for flammable liquids or combustible materials. If any are found, remove from the area.

**Vacation (Extended Shut-Off Periods)**

During extended mild or warm weather periods when hot water will not be in use, shut off the electric power to the tank. When hot water is needed again, restore power to the water heater.

During extended cold weather periods when hot water will not be in use and prone to freezing conditions, shut off electric power to the tank, close the supply line shut-off valve, open the drain valve and drain the water heater to a safe drainage location (as detailed previously). Once drained, close the drain valve. When hot water is needed again, restore the water supply to the tank. Once the tank is full, restore power.

**WARNING**

Water drained from the water heater may be scalding hot. Take care to avoid scalding. Wear gloves and safety glasses, and direct water to a safe drainage location. Failure to comply with this warning could result in substantial property damage, severe personal injury, or death due to scalds.

The maintenance activities described below are only to be performed during service by the Installer/Qualified Service Provider. These maintenance items should be performed during recommended annual service and any service calls.

1. Ask the owner / user if there have been any issues with the water heater. Diagnose any heater issues and repair / replace parts as necessary.

2. Check the water heater and related plumbing for leaks. Repair any that are found.

3. Check the area around the water heater for flammable liquids or combustible materials. If any are found, remove from the area.

4. Check the electrical element while the heater is in operation. If the element is hissing / singing excessively, it may need to be cleaned. Inspect the element and clean if necessary.

5. Inspect the Temperature and Pressure (T&P) Relief Valve. See instructions below.
**WARNING**

T&P Relief Valve Maintenance Instructions:
- **Annually:** Certain naturally occurring mineral deposits may adhere to the valve, blocking waterways and rendering the valve inoperative. The T&P Relief Valve lever must be operated to ensure the waterways are clear. If waterways are clear, hot water will discharge from the valve. Take precautions to avoid personal injury and property damage from contact with hot water. Before operating lever, check to see that a discharge line is connected to the valve, directing the flow of hot water from the valve to a proper place of disposal.
- Replacement of the valve is required if no water flows when the lever is operated. Turn the water heater off until the valve is replaced.
- If water flows from the relief valve, drain a few gallons from the tank to ensure water flows freely.
- **At least once every three years:** To ensure that the T&P relief valve has not been affected by corrosive water conditions and that the valve and discharge line have not been altered or tampered with illegally, relief valves should be inspected, and replaced, if necessary, by a licensed plumbing contractor or qualified service technician.

_Failure to comply with the above guidelines could result in failure of relief valve operation, resulting in possibility of substantial property damage, severe personal injury, or death._

6. Turn power supply off to the water heater. Open the drain valve and drain a few gallons of water from the tank to clear the tank of any hard water deposits. Once complete, close the drain valve and restore power to the water heater.

**PART 7 – TROUBLESHOOTING**
The following table details operating issues, possible causes, and service remedies.

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>POSSIBLE CAUSE</th>
<th>SERVICE REMEDIES</th>
</tr>
</thead>
</table>
| No Hot Water | 1. Manual disconnect switch turned off  
2. Improper Wiring  
3. No Power – blown fuse or circuit breaker tripped  
   a. Shorted wiring  
   b. Circuit overloaded  
   c. Improper wiring  
   d. Grounded element or thermostat  
4. Manual Reset High Limit Switch (ECO) open  
   a. Thermostat(s) defective  
   b. Thermostat out of calibration  
   c. Heat build-up due to loose wires  
   d. Defective High Limit Switch (ECO) | 1. Turn switch ON  
2. *Rewire per Fig. 5, Wiring Detail  
3. Replace fuse or reset breaker  
   a. *Replace or repair  
   b. *Provide adequate circuit to reduce load  
   c. *Rewire per diagram  
   d. *Replace  
4. Refer to Part 5, Sections A and B, this manual  
   a. *Replace thermostat  
   b. *Lower thermostat setting or replace  
   c. *Tighten wire connections  
   d. *Replace |
| Not enough Hot Water | 1. Heater undersized  
2. Defective Element(s)  
3. Miswired or defective thermostat causing only one element to work | 1. Reduce rate of hot water use  
2. *Check amperage, replace element if low  
3. *Check wiring or replace |
| Water too hot or not hot enough | 1. thermostat setting too high or low  
2. Thermostat out of calibration  
3. Thermostat access panel(s) and/or insulation not in place  
4. Thermostat(s) not resting tightly against mounting plate | 1. Change setting as required  
2. *Replace  
3. Inspect and replace as needed  
4. Inspect and insure that retaining spring(s) or mounting screws hold thermostat(s) tightly to mounting plates |
| Noisy heating element(s) | Hard water scale built up on element(s) | *Remove and clean |
| Water leaks | 1. Loose connection between inlet/outlet piping, relief valve, or drain valve and hex nut union on tank fittings  
2. Damaged seal ring washer  
3. Gasket around heating element(s) | 1. Tighten hex nut union fitting  
2. Replace seal rings as required  
3. Inspect and replace gasket if necessary |
| Leaking Temperature and Pressure Relief Valve | 1. Improperly seated valve  
2. Thermal expansion in closed water system  
3. Damaged/defective valve | 1. Attempt to reset valve by opening and closing handle  
2. Install a thermal expansion tank  
3. Replace relief valve  
**NOTE:** Do NOT plug T&P valve under any circumstances |
| Hot Water Odor | 1. High sulfate or mineral content in water supply.  
2. Bacteria in water supply. | 1. Drain and flush water heater. Refill  
2. Check with local water treatment specialist or utility to identify and address this problem. |

_Table 3 – Troubleshooting – *NOTE:* This maintenance should only be performed by a qualified service provider._
Figure 8 – LP-04-F Parts Blowout Drawing

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>Replacement Part #</th>
<th>Description</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6060P-938</td>
<td>4500 WATT ELECTRIC ELEMENT (W/O-RING) (EV-30 – EV-80)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>E1010</td>
<td>1500 WATT ELECTRIC ELEMENT (W/O-RING) (EV-6 – EV-20)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>6060P-187</td>
<td>ELECTRICAL BOX COVER</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>TP1500</td>
<td>3/4&quot; T&amp;P VALVE - 100XL-8</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>6060P-633</td>
<td>THERMODISC MOUNTING CLIP</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>TD1015</td>
<td>UPPER THERMOSTAT CONTROL</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>6060P-1009</td>
<td>THERMOSTAT CONTROL</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>6075P-053</td>
<td>KAMCO FIBERGLASS INSULATION</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>6060P-632</td>
<td>5/16-18 HEX NUT - THERMODISC MOUNTING CLIP</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>6075P-006</td>
<td>#8 X 3/4&quot; SELF TAPPING SCREW</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 4 – Parts Blowout Table
The following form should be completed by the installer for you to keep as a record of the installation in case of a warranty claim. After reading the important notes at the bottom of the page, please also sign this document.

<table>
<thead>
<tr>
<th>Customer’s Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation Address:</td>
</tr>
<tr>
<td>Date of Installation:</td>
</tr>
<tr>
<td>Installer’s Code/Name:</td>
</tr>
<tr>
<td>Product Serial Number(s):</td>
</tr>
<tr>
<td>Comments:</td>
</tr>
<tr>
<td>Installer’s Phone Number:</td>
</tr>
<tr>
<td>Signed by Installer:</td>
</tr>
<tr>
<td>Signed by Customer:</td>
</tr>
</tbody>
</table>

**IMPORTANT:**

*Customer: Please only sign after the installer has reviewed the installation, safety, proper operation, and maintenance of the system. In the case that the system has any problems, please call the installer. If you are unable to make contact, please contact your HTP Sales Representative.*

*Distributor/Dealer: Please insert contact details.*