5 Maintenance

5.1 Care and Cleaning

Routine Preventive Maintenance

DANGER
Risk of Scald- Before manually operating the relief valve, make certain no one will be exposed to the danger of coming in contact with the hot water released by the valve. The water may be hot enough to create a scald hazard. The water should be released into a suitable drain to prevent injury or property damage.

NOTICE
If the temperature and pressure-relief valve on the hot water heater discharges periodically, this may be due to thermal expansion in a closed water system. Contact the water supplier or your plumbing contractor on how to correct this. Do not plug the relief valve outlet.

Properly maintained, your water heater will provide years of dependable trouble-free service. It is suggested that the following annual preventive maintenance program be established.

1. Inspect Temperature Pressure Relief Valve.
2. Inspect heating elements, ECO, and wiring to each.
3. Drain and Flush the water heater tank.
4. Anode rod must be removed and inspected.

Temperature and Pressure-Relief Valve

Once a year, it is recommended to lift and release the lever handle on the temperature and pressure-relief valve, located on the front-right side of the water heater, to make certain the valve operates freely. Allow several gallons to flush through the discharge line to an open drain.

Heating Elements and ECO

Once a year, it is recommended to inspect the heating elements, ECO, and wiring to each. Inspection should be completed by service personnel qualified in electrical appliance repair.

Most electrical appliances, even when new, make some sound when in operation. If the hissing or singing sound level increases excessively, the electric heating element may require cleaning. Contact a qualified installer or plumber for inspection.

Heating Element Replacement Procedure

WARNING
If the heating element needs replacement, it is very important to use the same voltage, wattage, and construction. DO NOT replace the heating element with a generic heating element. Only 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, and could result in severe personal injury or death.

STEP 1: Turn off power to the water heater. Use a Phillips Head screwdriver to remove the wires from the element.

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

STEP 2: Run hot water at a faucet in the system. When it runs cold, shut off the faucet. Then shut off water at the main cold water inlet or, if possible, valve off the water heater from the system. Drain the water from the system, or just the water heater if it can be isolated from the system.

WARNING
Completely drain the water heater before removing and replacing a 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 property damage, severe personal injury, or death.

Step 3: Remove the element with a 1-1/2" socket wrench or element tool.

Step 4: Ensure thread and opening are completely free of debris. Use a nylon brush to clear away any debris.

Step 5: Put a small amount of NSF approved lubricant and sealant on the appropriate gasket and/or washer for the installation. Put the gasket and/or washer on the element.

Step 6: Screw the element clockwise into the tank, and tighten with the 1-1/2" socket wrench or element tool. Be sure O-ring seats properly.

Step 7: Open the main cold water inlet. If the water heater has been isolated from the system, open the valves. Refill the tank with cold water. Open a hot water faucet high in the system to bleed any air pressure from the system. Water will flow freely when air is completely bled.

WARNING
When filling the water heater, open a hot water tap to release air in the tank and piping. The tank must be full of water before the heater is turned on. Failure to ensure the water heater is full before turning it on will result in damage to the water heater, and could result in property damage, serious personal injury, or death. Such damages ARE NOT covered by water heater warranty.

Step 8: Pressure check the tank for leaks around element. If no leaks are found, use a Phillips Head screwdriver to connect the wires to the element.

Step 9: 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.

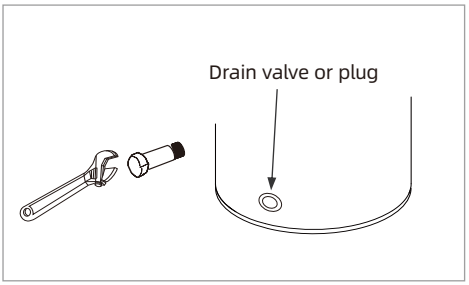
Draining and Flushing the Water Heater

CAUTION
Risk of Shock- Shut off power to the water heater before draining water.

DANGER
Risk of Scald - Before manually operating the relief valve, make certain no one will be exposed to the hot water released by the valve. 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.

A water heater's tank can act as a settling basin for solids suspended in the water. It is therefore not uncommon for hard water deposits to accumulate in the bottom of the tank. To clean the tank of these deposits, it is recommended to drain and flush the water heater tank once a year. To drain the water heater, follow these steps:

1. Turn off power to the unit. The electric heating elements will become damaged if operated without water.
2. Attach a garden hose to the drain valve located at the bottom of the unit and direct that hose to a drain. 3. Turn off the cold water supply.
4. Admit air to the tank by opening a hot water faucet or lifting the handle on the relief valve.
5. Open the drain valve or plug.



Flushing the Tank

1. Follow steps above to drain the water heater.
2. Once the water heater is empty, turn on the cold water supply.
3. Allow several gallons to flush through the drain valve and hose to an open drain.
4. Turn off the water supply and allow any water remaining in the tank to drain.
5. Repeat steps 3 and 4 until water runs clear.
6. Close the drain valve and fill the tank before returning power to the unit. The tank is full when water runs out of a nearby open hot water faucet.

Flushing should be done with an empty tank to promote additional removal of sediment.

NOTICE
See page 12 for product schematic.

5.2 Anode Rod Maintenance

This water heater is equipped with a magnesium anode rod. Anode rods are sacrificial components that counteract water chemistry to

minimize or eliminate tank corrosion.

The anode rod should be inspected annually and replaced as necessary to prolong tank life. Have the supply water quality professionally analyzed, as local water conditions will influence the duration for inspection and replacement of the anode rod.

The use of a water softener may increase the speed of anode consumption. More frequent inspection of the anode is needed when using softened or treated water.

Water with high sulfate and/or mineral content can produce a rotten egg odor in heated water. Chlorinating the water supply may minimize this problem.

NOTICE
Do not remove the anode rod from an operating water heater. Operating the water heater without the anode rod will shorten the life of the tank and VOID the warranty.

Routine Preventative Maintenance Anode Rod

Anode rods are designed and installed to protect and extend the life of residential water storage tanks.

The anode rod must be removed from the water heater's tank and inspected annually, and replaced when more than 6" (15.2 cm) of core wire is exposed at either end of the rod.*

NOTICE
Artificially softened water will cause the anode rod to consume more rapidly.

Due to shock hazard and to prevent accidental water leaks, this inspection should be done by a qualified servicer or plumber, and requires that the electric power and cold water supply be turned off before servicing the anode rod.

NOTICE
Do not remove the anode rod from the water heater's tank except for inspection and/or replacement, as operation with the anode rod removed will shorten the life of the glass-lined tank and will void warranty coverage.

NOTICE
Failure to replace the anode rod when consumed voids the warranty for the tank. Warranty coverage for all other components remains intact, and is unaffected by this maintenance requirement. The replacement anode rod, and the inspection for consumption are not covered by warranty.

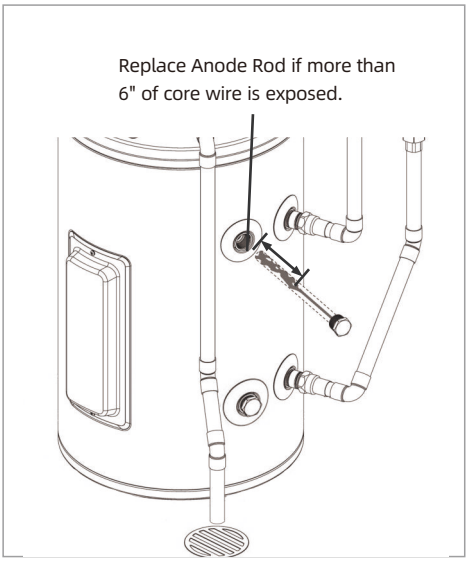
Tools needed:

- Socket/Torque Wrench 1-1/16" Socket
- Pipe Joint Compound or Pipe Thread Sealant Tape
- Anode Rod, if needed

To service the Anode Rod

1. Disconnect power, shut off the water supply, drain the water lines of the home. Drain the water heater through the lower drain valve.
2. Using a 1-1/16"socket, unscrew the anode rod, then lift out to inspect.
3. Inspect and replace if necessary.
4. To install the anode rod, seal the threads with pipe joint compound or pipe thread sealant tape, thread into the port tighten.
5. Turn water supply on, open a tap to remove any air in plumbing system, fill water heater with water, inspect for leaks, then turn the power on.

NOTICE
Do not turn on power until water heater is completely filled.



5.3 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 the 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 element may be leaking at the tank fitting. Turn electrical power "OFF", remove the access panels, insulation block, and pad.

If leaking is visible around the element, follow proper draining instructions and remove the element. Reposition or replace gasket on element. Place element into opening and tighten securely. Then follow "Filling the Heater" instructions, this manual.

F. Water from drain valve or plug may be due to the valve being opened slightly.

G. * The drain valve or plug 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.

NOTICE
*To check the fitting threads, insert a cotton swab between the jacket opening and fitting. If the cotton is wet, follow the draining instructions in the Maintenance section of this manual. Then remove the fitting. Put pipe dope or Teflon tape on the threads and reinstall the fitting. Then follow "Filling the Heater" instructions, this manual.