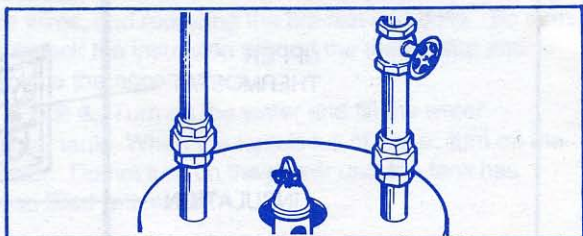


ELECTRIC HOT WATER



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HomeClub

AMERICA'S DO-IT-YOURSELF

WAREHOUSE

**IN SERVICE, SELECTION
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TOOL and MATERIAL CHECKLIST

Pipe Wrench Adjustable Wrench Screwdriver
Needlenose Pliers Water Bucket Garden Hose
Continuity Tester Wiping Cloths New Heater

Read This Entire How-To Booklet for Specific Tools
and Materials Not Noted in The Basics Listed Above.

Electric hot water heaters are about as troublefree as any appliance can get. Hardly anything goes wrong with them, and when a problem does occur the problem usually is very easy to solve--even to the point of replacing an old water heater with a new one. In this How-To Booklet you will find two levels of involvement:

1. Electric hot water heater maintenance and making minor repairs.
2. How to replace an electric hot water heater.

Draining The Heater

Most electric water heater manufacturers advise draining a few gallons of water from the tank of the heater every 6 weeks to remove sediment when the heater is new and every 6 months after the heater has been in operation for a year. To do this:

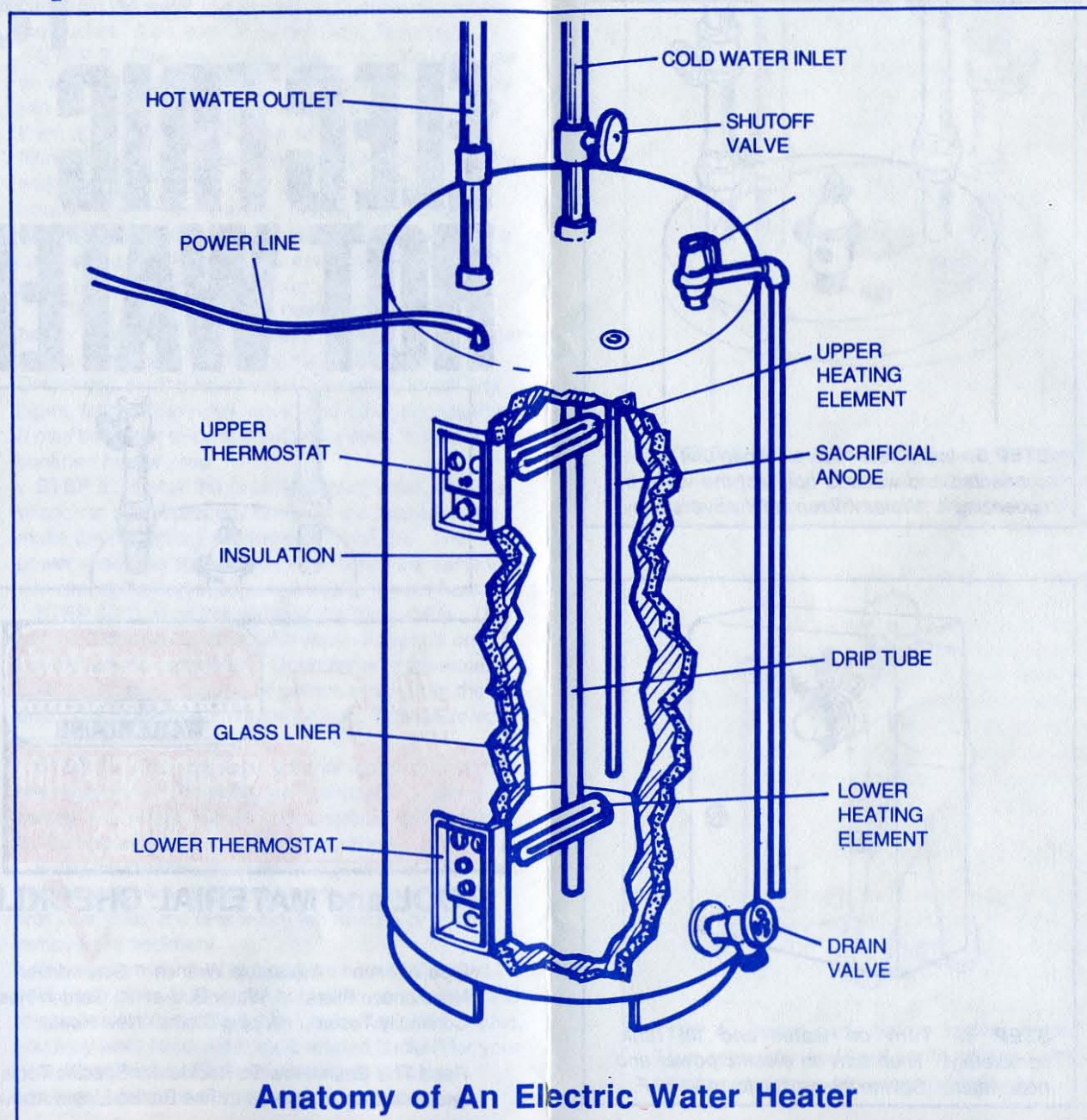
1. Turn off the water to the heater.
2. Turn off the power to the heater at the main service entrance (circuit breaker or fuse box).
3. Place a water bucket or attach a garden hose to the draincock of the heater which is positioned at the bottom of the heater. Run the other end of the hose into a floor drain.
4. Open the draincock and drain a few gallons of water from the heater tank. If you use a bucket to catch the water, turn off the water at the draincock in order to empty the bucket and replace it.
5. Close the draincock and turn on the water and the power supply.

Water Won't Heat

The problem may be lack of power or no power.

1. Check the circuit breaker at the main electrical service entrance. If you find a tripped toggle on the heater circuit, press the toggle to the complete "off" position, and then snap it to the full "on" position. Some toggles are pushed straight down to reactivate instead of being flipped like a light switch.

If the circuit is protected by a fuse system, check the fuse to see that it is still working. If not, replace the fuse with the same amp rating as the old one. The amp rating will be stamped on the bottom tip of the fuse. The fuse probably will be 30 amps, but check.



Anatomy of An Electric Water Heater

4

2. If a fuse or tripped circuit breaker is not the problem, and the fuse/circuit continues to blow/snap, call in a professional electrician for repairs.

3. If the circuit seems okay, the trouble could be a malfunctioning element. You can replace this yourself. See the details below.

Water Too Hot

This most likely is a thermostat problem. Check the thermostat on the heater and turn back the setting if it is too high. A normal setting is between 140 and 160 degrees.

If a thermostat adjustment doesn't work, it could be that the thermostat is malfunctioning. This is a job for a professional electrician.

Heater Water Pipes Leak

With an adjustable wrench on hex fittings or a pipe wrench, try tightening the pipe fitting at the leak point. Don't use too much pressure; just snug the fitting.

If tightening doesn't work, turn off the electrical power to the heater and turn off the water. Then, replace the pipe fitting.

If the heater is leaking around an element, the problem probably is a faulty element gasket. Turn off the water and the power and try tightening the thermostat bracket over the element. This is illustrated below. If tightening doesn't work, you will have to replace the gasket. But turn off the water and power before you loosen the bracket/element to reach the gasket.

Tank Is Leaking

This problem almost always requires replacing the water heater, which is detailed below. But before you make the replacement, turn off the water and electric power to the heater and drain the heater.

Replacing An Element

A faulty element can be the cause of no hot water. But before you replace the element, test it with a continuity tester. Below are the steps to take.

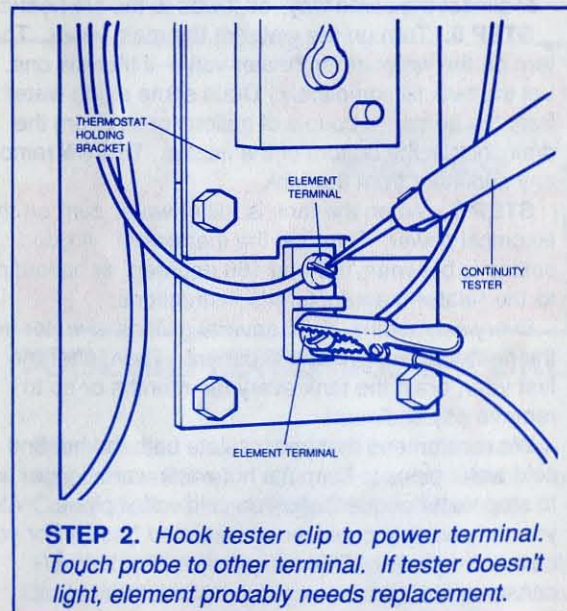
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STEP 1. Turn off the electric power at the main electrical service entrance.

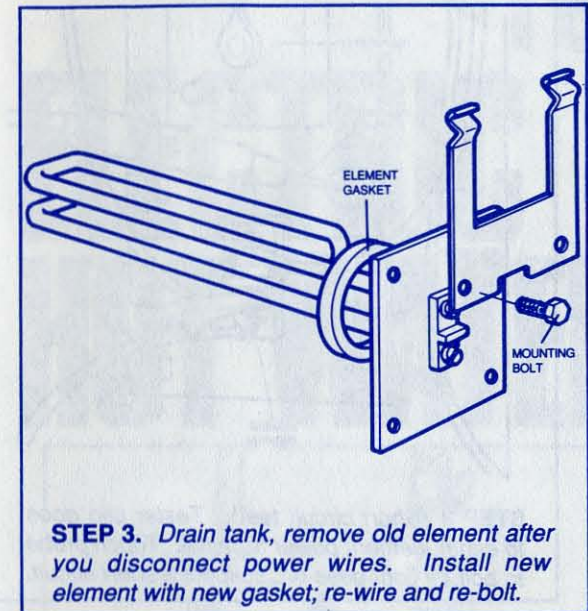
STEP 2. Attach the alligator clip of the tester to one electric terminal of the element. Then touch the probe of the tester to the other electrical terminal of the element. The tester should light. If not, suspect a broken wire or faulty heating element.

STEP 3. Open a nearby hot water faucet to start draining the tank. Then open the tank's draincock to drain the remaining water. With the power and water turned off, remove the bolts holding the thermostat bracket and the element in the heater. Let the thermostat hang by the connecting wires. Then replace the old element with a new one of the same size, setting a brand new gasket in position, replacing the wires, and replacing the bracket and bolts. Be sure to repack the insulation around the thermostat and replace the access door.

STEP 4. Turn on the water and fill the water heater tank. When the tank is full of water, turn on the power. Do not turn on the power until the tank has been filled with water.



6



A Short Circuit?

No hot water could indicate a short circuit in the heater instead of a malfunctioning element.

Test it this way:

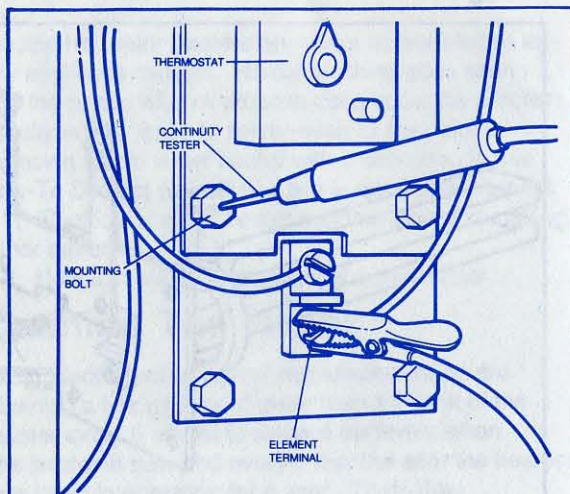
STEP 1. Turn off the power to the water heater at the main electrical service entrance.

STEP 2. Remove the access door and the insulation around the thermostats.

STEP 3. Fasten the alligator clip of a continuity tester to one terminal of the element. Touch the probe of the tester to a bolt holding the bracket/element in position. If the tester light goes on, there is a short circuit and the element usually must be replaced.

A short could be caused by a loose wire in the element coming in contact with metal. If water leakage is the problem a fuse/breaker can blow/snap or the water in the heater will overheat causing the high-temperature cut-off to come on. If this is a problem, find the leak and correct it. Most likely, however, you will have to replace the water heater, which is the subject starting on the next panel.

7



STEP 3 (Short circuit test). Tester clip goes to either element power terminal. Touch probe to bolt. If light goes on, suspect a short circuit.

How To Replace The Heater

This sounds like a tough job, but it isn't. In fact, replacing an electric water heater is much easier than replacing a gas water heater--and the gas heater isn't very hard to replace.

The new electric water heater that you buy should be the same dimensions as the old water heater, unless you have space around and above it for a larger model. If the heater that you are replacing had a small hot water capacity and you want to increase this capacity, you may be able to find a larger capacity model with the same outside dimensions as the old one--if the space is limited and you have to buy-to-fit.

STEP 1. Turn off the water at the main shut-off valve. Then turn off the electric power to the heater at the main circuit breaker or fuse box.

STEP 2. Drain the water heater. This can take plenty of time, so schedule your work accordingly. You can attach a garden hose to the draincock and drain the water into a floor drain. Or, the slow way, you

8

can drain the water in a bucket and continually empty the bucket. Also, turn on all hot water faucets.

STEP 3. Disconnect the water lines. You can use an adjustable or pipe wrench for this; the lines usually join into a union fitting, or you may be able to remove them at the tank. If the pipes do not have a union fitting, it's smart to install one when you install the new water heater. This will save you plenty of time and trouble later. If there are no unions and you can't remove the pipes from the heater, cut the pipes with a hacksaw, go back to the nearest fitting, and install a union and new pipe at this point.

STEP 4. Remove the old heater and set the new heater in position. You will need a helper for this; water heaters are heavy--sometimes 200 pounds or more. Before you set the new heater in position, install any pipes, fittings, the relief valve, and other accessories. It may be easier to do this out in the open than in a confined heater area.

STEP 5. Install the pressure-relief valve, using a wrench to seat it properly on top of the heater. Then make the necessary electrical connections. The power should be connected to the heater the same way--or almost the same way--as it was to the old heater.

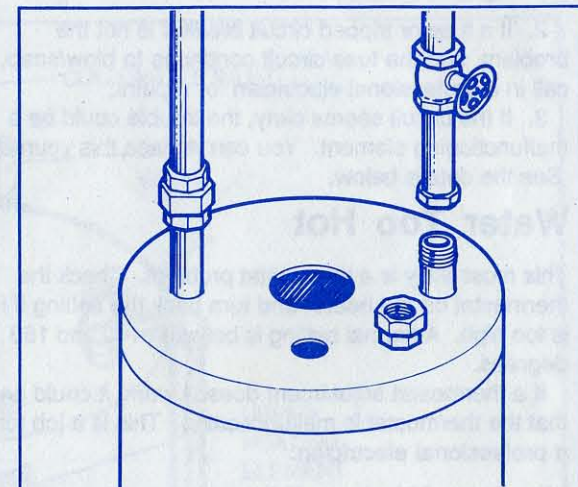
STEP 6. Turn on the water at the main valve. Then turn on the water at the heater valve--if there is one. Let the tank fill completely. Drain some of the water from the heater--a couple of gallons or so--from the draincock at the bottom of the heater. This will remove any sediment from the tank.

STEP 7. When the tank is full of water, turn on the electrical power. Then set the thermostat. A good setting is between 140 and 160 degrees--or according to the heater manufacturer's instructions.

Every six months, drain several gallons of water from the heater to remove any sediment. Then, after the first year, drain the tank every ten months or so to remove any sediment.

We recommend that you insulate both the hot and cold water pipes to keep the hot water warm longer and to stop water condensation on cold water pipes. Also, you may want to consider an insulated "jacket" for your new water heater. This inexpensive item helps conserve electrical energy, manufacturers report.

9



STEPS 1, 2, 3. Turn off the power and drain the water tank. Then disconnect the water lines. Cut the pipes if needed; install unions.



STEP 4. Install parts before setting heater. Then set heater and level it with shingle shims. Heaters are heavy; have a friend help you.

