



Noisy Electric Water Heaters

Occasionally, electric water heater users complain of hissing or singing noises from within the unit. Actually, the sounds are being produced by the heating elements and occur for a variety of reasons.

Most water supplies contain minerals, which form a scale on the element sheath. The scale formation is absorbent and eventually traps small pockets of water inside the scale. When the element heats, the trapped water forms into steam resulting in hissing or other sounds as it is released from the scale. Other times, the heating elements can act like a tuning fork and vibrate. The electrical current causes this vibration and the sound you hear is called a 'harmonic vibration'. Tightening the heating element as little as $\frac{1}{4}$ turn often stops harmonic vibrations.

Although potentially bothersome, this condition is quite normal. Hot water is a complex environment that enhances the existing capability of naturally occurring minerals to cause corrosion, scale deposits, and odor problems. These minerals are already present in the cold water supply. In fact you can see the same 'lime' substance build up around almost any water faucet fixture.

Heating water causes existing minerals to settle faster and in larger quantities. As the water is heated, it becomes lighter and less dense. The naturally occurring solids, although not visible to the eye, will settle at a faster rate. The result is sediment collecting at the bottom of the tank. Routine draining maintenance will help reduce the collection of sediment. If a homeowner does not periodically drain and flush the tank, the sediment will continue to accumulate on the bottom the tank. The result is a clogged drain valve and scale build up on the electric heating elements.

In areas of low water pressure (usually under 30 pounds per square inch gauge), it is not unusual for water heating elements to make sounds. Spot boiling at the elements, which would not normally occur at higher pressures, causes the noise. Under these conditions, the noise is normal.

Voltage in excess of that stamped on the heating element flange can cause a noise. As voltage rises above the elements rating, wattage is increased. The element is doing more 'work' than it is designed to do and may be vibrating from the increased resistance. Check your water heaters rating plate for the properly rated element size.

Generally, heating elements should not be replaced when the water heater makes a little noise. Most noises do not signify an unsafe condition. Check for lime scale on the element, sediment in the tank, low water pressure, or abnormal voltages to the water heater.

**All of these checks involve contact with hot water or electrical voltages. Use caution when diagnosing noise complaints.
If in doubt, call a water heater or plumbing professional.**