



## WATER HEATER MAINTENANCE

A water heater's like a trusty workhorse-steady, reliable and practically maintenance-free. But giving your water heater a little extra TLC can significantly reduce your energy costs. Water heating can account for up to 20 percent of your home's energy use-second only to space heating.

### How Water Heaters Work

When you turn on the hot water tap, heated water is drawn into your home's pipes from the top of your water heater. To replace the water being used, fresh cold water flows into the bottom of the tank, activating the heating element.

Gas and electric storage water heaters operate this same way. However, gas heaters have a pilot light at the bottom to ignite the burner when needed. They also have a flue running through the center of the tank to exhaust combustion gases. And while gas models have only a single burner, electric heaters have a lower and an upper heating element.

Both models feature a temperature/pressure release valve near the top of the tank. This valve will allow steam or hot water to escape safely, should a thermostat malfunction occur. It should be checked annually to ensure that it's working properly to keep it running at maximum efficiency.

### Energy-Saving Options

There are three main strategies you can take to save water and heating energy:

#### 1. Thermostat Control

Your tank is probably keeping your water hotter than necessary. Most heaters are set at 140 degrees F, and this high a setting is only needed if you have a dishwasher without a booster heater. Turn the temperature down to 120 degrees F (midway between low and medium on

a gas heater dial), and you'll cut your water-heating costs by six to 10 percent.

Electric heaters have both an upper and a lower thermostat you'll need to adjust. However, before removing the thermostat access panels, be sure to first turn the electricity off at the circuit breaker or fuse box.

When you're going to be away from home for several days, consider turning your gas water heater thermostat to the pilot setting. Electric heaters can be shut off at the electrical breaker box. It'll take only about an hour to reheat once you return. If you have a gas model and shut the heater off, be sure to learn how to re-light the pilot light (see back panel of this brochure).

#### 2. Insulating Wrap

Wrapping the tank in a blanket of fiberglass insulation will reduce standby heat loss by 25 to 45 percent. This means a savings of four to nine percent on your water-heating bill.

Water heater insulation kits are available for \$10 to \$20 at your local hardware store. They are easy to apply and will pay for themselves in less than a year. Be sure to follow the directions, however. It's especially important not to cover exhaust vents and air intakes on gas models and access thermostat panels on electric heaters with insulation.

#### 3. Flushing the Tank

Over time, sediment and scale (dirt and mineral deposits from the water) build up inside your water tank. They reduce both heating element efficiency and the overall capacity of the water heater. You can reduce this buildup by regularly flushing water from the tank.

The drain valve is located near the bottom of the tank. Open the valve and let the murky water drain into a bucket until it runs clear (usually after one to two gallons). If the valve hasn't been opened in years, you may want to attach a garden hose to it the first time you drain, in case it's difficult to shut off. In some areas, depending on the hardness of the water, monthly flushing is recommended, and in others the tank need only be flushed once a year.

By following these three simple steps, you can ensure that your water heater will operate efficiently. To save even more, consider insulating your hot water pipes (to further reduce standby heat losses) and installing heat traps. Heat traps are one-way valves placed inside both the hot and cold water lines running into your water heater. They help to keep the hot water from rising out and the cold water from dropping in to your water heater when you're not drawing water from a tap.

## **New Water Heaters**

If you're in the market for a new water heater, you're in for a nice surprise: Today's models are considerably more energy-efficient, thanks to national appliance efficiency standards which took effect in 1990. Pay close attention to the yellow EnergyGuide labels when shopping. They provide information on energy efficiency and estimated annual operating costs for each model.

Before you buy, consider both purchase and operating costs. Models with the lowest price tags are often the most expensive to operate. And unless the owner's manual specifically states not to, wrap your new water heater in an insulating blanket and, if possible, put it in a heated space.

## **Lighting a Water Heater Pilot Light**

Instructions for lighting a pilot light should be on a plate mounted to the water heater. The instructions, which apply to most gas water heaters, are repeated here:

1. Turn the thermostat indicator knob to OFF.
  - a. This shuts off gas supply to the heater.
  - b. Wait 5 minutes for any gas that might be in the combustion chamber to clear the heater.
  - c. If closed, open the gas valve in the gas supply pipe.
  - d. Turn the indicator knob to PILOT.
2. Depress the indicator knob and light the pilot. (Continue holding the indicator knob for one minute after the pilot is lit. The pilot

flame should remain on when the knob is released.)

3. Turn the indicator knob to ON. The main burner should ignite.
4. Set the water temperature dial to the desired temperature.
5. Repeat these instructions if it is necessary to relight the heater.

If the pilot lights but goes off when you release the reset button, try holding the button down again for an additional 10 to 15 seconds. If it still fails to stay on, either the thermocouple is defective or it is not positioned properly in the flame of the pilot. The flame from the pilot should bathe the top 1/2 inch of the thermocouple rod. If it does not, loosen the bracket nuts and reposition the rod. In case you are wondering what the thermocouple does, it acts as a safety cutoff for the gas valve. When the pilot is lighted, the heat generates a slight electric current in the thermocouple, which then allows gas to come from the gas valve. When the pilot goes out, the thermocouple stops sending the current, and the gas supply stops. If the thermocouple is faulty, replace it.

If you still cannot get the pilot lighted, there is probably something obstructing the flow of gas. Check the tiny orifice for clogs, and clean it if necessary, or call a plumber or heating contractor for maintenance.

## **For More Information**

Before purchasing a water heater, or if you have questions about maintaining your existing one, contact your local utility, the Community Action Agency/Human Resources Development Council, the tribal weatherization office or the Extension office in your county.