

## **FURNACE & WATER HEATERS**

The coach furnace rarely has problems while water heaters are always going bad. Does the water have something to do with this? Nah! The water heater is exposed to the elements since its electronics are outside while the furnace is nicely protected from the weather inside the RV. Both of these units use igniters, which provide a spark to light the propane. Igniters wear out and have to be replaced depending on usage. You should have a spare igniter for each heater. Other than cleaning the gas nozzle and the burner chamber every year, you usually do not need to worry about the furnace.

As mentioned earlier make sure all of the water heater electrical connections are tight, if you have an older trailer and your circuit board is exposed to the elements. You should **purchase a new potted board** with the spare igniter so that when cleaning the old board no longer works you are ready to go. Another spare part of value is a **low temperature thermostat** that sets the water temperature. These often go bad and if they open, you will have no hot water. If it fails closed, the water will stop heating when the high temperature thermostat operates. This is much too hot for a human being and you are likely to be burned. By the way, you can usually get good parts discounts from the vendors at the International Rally so pick up your spares there.

A good modification is to purchase a variable (low temperature) thermostat that allows you to set the water temperature to your liking. We reduce the temperature when our grandchildren are aboard and increase it when it is just my wife and I. This is installed in place of the fixed temperature thermostat.

Keep the water heater compartment and the main burner orifice clean. Periodically clean the furnace compartment and its main burner. Learn how to adjust the main burner for the proper flame for both the water and coach heaters. The proper gap for the igniter is 1/8" between the electrode and ground. Clean the burners in alcohol and let them dry. You can use a round toothpick to clean the jets but never use a metal object since it can change the orifice opening. Wet the toothpick and twirl it in the jet. Circuit board contact cleaner will also work since it leaves no residue.

When something is not working correctly, the first thing to check is the wire connections, particularly the grounds. By the way, if the ground screw can no longer be tightened replace it with the next larger screw size. If that does not work than find another ground point. Do not just tighten as much as you can and hope it will hold because it will fail before you reach your next stop. Sometimes you will need to carefully make a new hole for the ground connection. Be careful and do not drill a blind hole into the water tank (unfortunately, I have seen this a few times).

In all my years of camping, I have never found a defective pressure-temperature relief valve. However, I have found many leaking valves. Often the camper is sold a new valve that results in the leak being gone and the assumption that the old valve was faulty. The valves appear to leak only when the heater is operating. Most water heaters are designed to operate with an air gap at the top of the tank that provides for expansion when the water is heated. When the valve leaks, it is usually because this air gap is no longer present. To fix the problem turn off the heater and the water supply. Open a faucet in the RV and relieve the water pressure. Open the relief valve handle and keep it that way until the water stops flowing. Snap shut the valve handle and you will then have the air gap back with no more leaks.

When you are camping in cold weather the water heater cycles quite a bit since the water in the tank cools off much faster. Just before I turn off the bathroom light to go to bed, I also turn off the water heater. This stops the constant cycling during the night and saves propane. Just do not forget to turn it back on in the morning.

## **REFRIGERATOR**

The primary maintenance for your fridge is keeping the compartment clean, cleaning the burner assembly and cleaning the flue baffle. On gas operation, the spark electrode should be spaced from 1/8" to 3/16" from the burner tube. A separate thermocouple tells the gas valve that the flame is on and it is safe to keep the gas valve open. The thermocouple should be in the flame. The flame should have a clear blue color. The burner jet can be cleaned by

soaking it in alcohol and then blowing dry with compressed air. If you do not have alcohol you can soak it in vinegar, except you should leave it in for at least 2 hours. You can also use special contact cleaner (leaves no residue). Do not use anything metallic that could alter the size of the jet. Procedures for cleaning the flue are in your instruction manual. You should do this maintenance procedure at least once a year.

For spare parts, you should have a 3 amp and a 5 amp cartridge type fuses. The 3 amp is for the control system and is required for gas, A/C or DC operation. The 5-amp fuse is for the heater for A/C operation. If your fridge operates only on gas, then the problem is usually either the fuse or the A/C heating element. However, do not forget to check the connections first and make sure the A/C supply is getting to the fridge circuit board. If you are operating on A/C but not on gas then check to see if the igniter is sparking and the thermostat is within the flame. If you have a three-way unit that operates on DC, you will also have a 35-amp fuse. Remember for DC operation you are drawing over 25 amps out of the coach batteries and you should only do this with some source of high current DC, in addition to the batteries (like the engine alternator in a motorhome or a generator).

The circuit board connectors are a big source of failures, especially for the older units. There are several connectors (Molex connectors) on the board that can get loose and may develop corrosion. Remove each connector separately and spray both sides with the contact cleaner. Wipe the contacts dry and put a small amount of silicon dielectric on the male pins. I have seen many refrigerators repaired with a new circuit board when all that was required was cleaning the contacts on the old circuit board connectors.

During hot weather if your unit is not cooling too well, I would recommend installing a fan in the outside compartment. This should be installed as close to the top of the coach as you can reach and should be exhausting the air. The air across the fins is what takes the heat out of the fridge compartment and provides maximum cooling. I do not like the fan units that come with an automatic thermostat since they do not come on soon enough. Once you lose temperature, it can take many hours overnight, to regain adequate food storage. I installed a switch inside the RV and turn it on when my thermometer inside the refrigerator tells me it is getting near 40 degrees.

A little tip: If you lose your refrigerator on a Caravan and cannot get a fast repair, remove as much of the food that does not really need to be cooled (soda, fruit, veggies, cheese, etc.) and put bags of ice in your freezer compartment. Also, fill your vegetable crispers with ice. This should keep the critical food cold until you can get repairs. (You can put the beer in the vegetable crispers along with the ice). I have seen people rush off to buy several coolers when they have a perfectly good temporary icebox installed in the RV. Just put the ice in plastic bags or whatever large fridge containers you have. Large blocks of ice will last longer. If you use open containers, like the vegetable crispers, do not forget to periodically empty the water from them. If you can find dry ice, get some for the freezer. This will keep the freezer food in good condition.

*Continued next month....*