



## **SOLAR DOMESTIC HOT WATER HEATING SYSTEM (DRAINBACK TYPE) DESCRIPTION OF OPERATION**

Your solar water heating system is fully automatic, requiring no routine maintenance to provide your household with free hot water each sunny day. However, as with all mechanical devices, a small amount of periodic attention to the system operation will provide you with many years of trouble free performance, thus assuring you of reduced energy costs for many years to come.

The temperature of the solar panels is always being monitored by the control unit on your system and is compared to the temperature of the lower portion of the solar storage tank. Whenever the solar panels are at least 10 degrees warmer than the storage tank, the circulating pump is automatically turned on and circulates a non-toxic heat transfer fluid through the solar panels. This fluid is heated while flowing through the panels and is returned to the heat exchanger located in the solar storage tank where the heat is transferred to the water in the tank. When the solar panels can no longer raise the temperature of the storage tank due to sky conditions (clouds, night-time or low sun angle) the system controller will automatically turn off the circulating pump. The circulating pump will also turn off if the tank temperature reaches 180F. When the circulating pump is off, the non-toxic heat transfer fluid will drain out of the solar collector panels and into the 15 gallon drainback tank.

If your system controller has a manual switch located on the exterior of the control box it should always be set to the automatic position for maximum energy collection. The pressure of the heat transfer fluid will usually be between 0 to 10 PSI under normal operation. Most systems have a thermometer located on the pipe that returns from the solar collector panels. You should notice that the temperature indicated on this thermometer rises during the day on a sunny day. When the system is operating you should hear the sound of the heat transfer fluid "falling" into the drainback tank and you will observe some elevated temperature on the thermometer on the pipe labeled "From Collectors".

### **If you don't think the unit is operating properly:**

1. Check that there is power to the unit (power light on).
2. Check that the switch (if present) is in the "AUTO" position.
3. Is the pumping light on the control unit on?
4. Is solar energy available? (No clouds, sun is shining on solar panels between the hours of 10 AM and 2 PM.) If not, check again when the sun is shining on the solar panels.
5. Can you hear the sound of fluid falling into the drainback tank?
6. Is there an elevated temperature on the return line thermometer?
7. Is the circulating pump at a very high temperature but the thermometer on the return line does not indicate an elevated temperature?

If you still think you have a problem unplug the unit from the outlet and then please call for service.

### **WHAT TO CHECK MONTHLY**

1. **System pumping light on during mid-day when the sun is shining.**
2. **When system is pumping listen for sound of fluid flowing through the drainback tank.**
3. **Return line temperature is at an elevated temperature when system pumping light is on.**