

Mixing Valve Troubleshooting

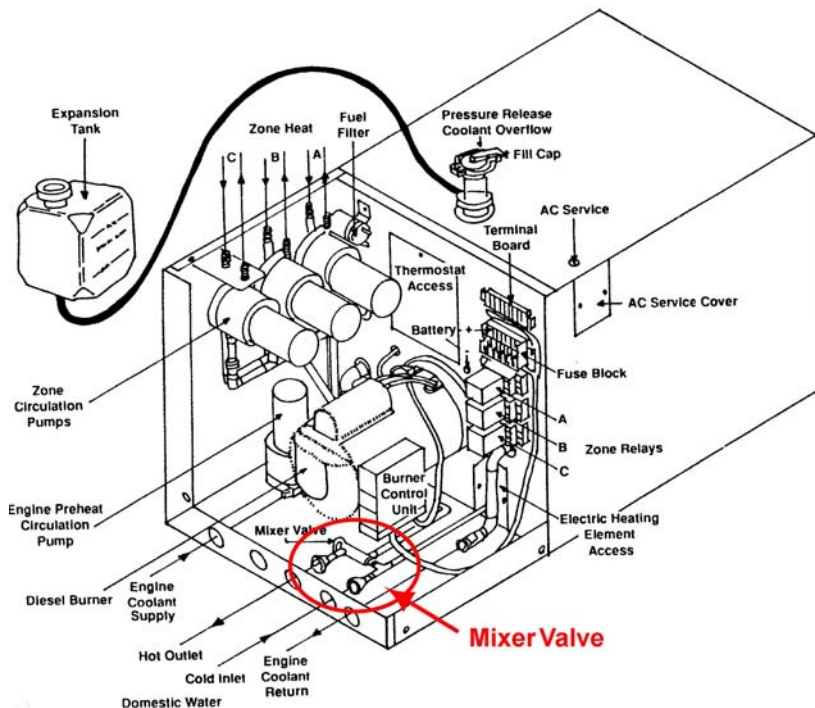
Many of the low water temperature problems with Aqua-Hot Hydronic heaters can be traced to the mixing valve not operating properly.

The valve mixes hot water from the Aqua-Hot boiler with cold water to maintain a constant temperature to the hot water supply for the coach.

This valve is sometimes called an anti-scald valve. In a residential plumbing application, this valve would attempt to maintain a constant water temperature if the water pressure drops because someone turned on a water faucet in a different part of the house. In the Aqua-Hot application, the mixing valve attempts to maintain water temperature between diesel burner run times.

Thermostatic valves utilize the principle of expanding wax, which in a semi-liquid state undergoes large expansion rates within a relatively narrow temperature range. This controls a valve that mixes hot and cold water. In normal operation, water temperature is controlled to within a few degrees.

To troubleshoot the valve, you will need to identify where it is located. In Aqua-Hot hydronic heaters (Model 600-D) the valve is inside the cover as shown in the drawing below.



This drawing is for model 931/12
Your Aqua-Hot may be slightly different

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The mixing valve for the Hydro-Hot (Model 450-D) is on the back of the unit.



You can see the mixing valve in about the middle of this photo.

Photo provided by Mark Quasius (Cruzer) www.rvcruzer.com - Thanks Mark

The symptoms of a defective mixing valve is that the hot water supply in the coach will vary in temperature or the coach water supply may start out hot, then cool off rapidly.

You can troubleshoot the mixing valve by checking the temperature of the water lines that feed the valve. The cold feed line should of course be cold. The HOT (from Hydro-Hot) should be around 190 degrees. **USE CAUTION: THIS IS HOT.** The bottom line (Mix) should be warm. The recommended setting is 120 degrees.

There is an adjustment dial on the top of the mixing valve. The recommended setting is #2. Caution – The #2 lines up with a mark that is on the front of the mixing valve (it is installed backward). You should see a #4 facing you to have the valve set properly. **Disclaimer: If you increase the (output) water temperature to a higher temperature the hot water in your coach may be hot enough to scald you.** If you adjust temperature, do it a little at a time. Turn to a higher number to increase temperature, a lower number to decrease temperature.

The Aqua-Hot (model 600-D) works the same way. The valve is also installed upside down, so the #2 mark will be at the bottom and #4 facing up.

The older mixing valves (that are soldered in) can be rebuilt with a kit. The newer style valves are not rebuildable. They must be replaced as a unit. There are unions at each fitting to make replacement easier. All replacement parts are available from <http://www.Parts.RVHydronicHeaterRepair.com>

- Roger Berke - Copyright 2008 – Revised 9/2009