Fluid Analysis

AQUA-HOT SYSTEMS

Aqua-Hot Heating Systems are designed to supply moist, even interior heat and continuous on-demand hot water when hooked to a continuous supply of water. Some models also provide engine preheating which can reduce wear and tear at cold engine start up. The purpose of this flyer is to inform our customers on the importance of having these critical hot water systems sampled, on an annual basis, to properly assess the overall "health" of the heat transfer fluid (coolant) and internal system components.

Like other certified NRVIAⁱ inspectors, I've been specifically trained to properly collect RV fluid samples for analysis including samples from Aqua-Hot heating systems.

Aqua-Hot heating systems use one of two fluid types: Camco (pink color) or the Century (green color). The fluid used in your system may have been determined by the coach manufacturer and the production year. According to Aqua-Hot, mixing pink and green fluids produces a brown color that may be confused with corrosion, creating unnecessary service expense. Aqua-Hot recommends annual system maintenance and offers "Annual Service Kits" to perform this maintenance. Figure 1 shows a typical Annual Service Kit. Among other items, the Annual Service Kit includes a refractometer (see red circled item). Refractometers are used to measure freezing point and propylene glycol concentration of the coolant used in the system.



Figure 1: Aqua-Hot's Annual Service Kit with Refractometer

While an annual check of the freezing point and propylene glycol concentration gives an indication of the condition of the fluid, it does not reveal other important fluid properties

and does not indicate if contamination or wear materials might be present. Refractometer readings do not tell the complete story.

About Our Testing

Quality RV Inspections offers a complete fluid analysis on these critical systems. Our specialized testing offers for more insight into the true condition of the Aqua-Hot heat transfer fluid. You'll receive a scientific test report for your records which includes a complete evaluation of the fluid properties plus an assessment of internal system part wear.

Figure 2 shows a comparison of new vs. used fluid. The sample on the left (#155711) was fresh (unused) "Century Fluid" and the sample on the right (#143902) is the same fluid taken from a customer's system after only one year of service. In addition to showing severe levels of flaking and sludge, the sample also showed high levels of copper and tin



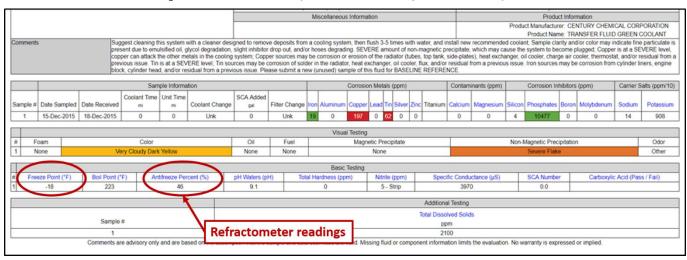
Figure 2: New fluid and used fluid sample

In this case, the customer experienced poor heat distribution and found one heating circuit to be completely blocked by system sludge that collected in a tubing bend under the floor. This amount of sludge can lead to clogged check valves and clogged tubing. Some of these systems have required system flushes at a cost of up to \$600 or more, in order to rid the system of the sludge buildup.

Page 2 shows the data portion of the test report for Sample #143902. Below the report, we show a comparison of tests offered through the Aqua-Hot Annual Service Kit versus the complete testing that Quality RV Inspections offers.

Aqua-Hot heating system owners are encouraged to obtain annual fluid analyses on their Aqua-Hot heating systems to keep them as "worry free" and reliable as possible.

Data from Sample #143902 (Actual Test Report Shown)



Aqua-Hot versus Quality RV Inspections Testing Quality RV Inspections Test Description Aqua-Hot's Annual Service Kit Fluid Analysis **Freeze Point Glycol Content Corrosion Metals Contaminant Metals Corrosion Inhibitors Foam Test** Color **Oil Contamination Aqua-Hot Annual Fuel Contamination Magnetic Precipitate Service Kit Tests Non-magnetic Precipitation** Odor does not cover **Carrier Salts Boiling Point** this testing pН **Total Hardness Nitrite Level Specific Conductance**



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SCA Number

Total Dissolved Solids

i NRVIA = National RV Inspectors Association