AQUA-HOT SYSTEM Fluid Analysis

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.

NRVIAⁱ inspectors are trained to properly collect RV fluid samples can we now offer fluid analysis on Aqua-Hot Heating Systems. 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.

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

Fluid Analysis from NRVIA - 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.

NRVIA inspectors offer complete fluid analysis on these critical systems. Our specialized testing offers a report with data, over and above what a refractometer reading offers. Our customers receive complete fluid evaluations that cover all of the fluid properties plus an assessment of possible internal system part wear. Figure 2 shows a comparison of new vs. used fluid. The sample on the left (#155711) is fresh unused Century fluid and the sample on the right (#143902) is the same fluid taken from the 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.



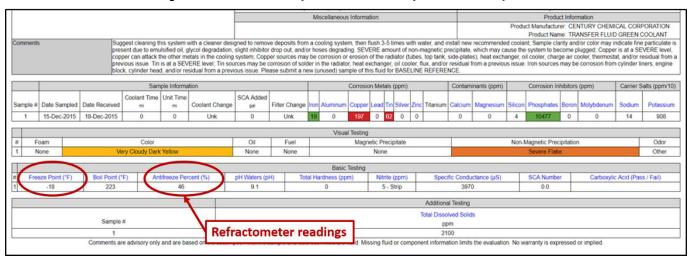
Figure 2: New fluid and used fluid sample

In this case, the customer experienced poor heat distribution and later 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. Many of these systems have required system flushing, at a cost of up to \$600 or more, in order to rid the system of this sludge buildup.

Page 2 shows the data portion of our test report on Sample #143902. Below the report, we show a comparison of tests offered through the Aqua-Hot Annual Service Kit versus testing offered through a certified NRVIA inspector.

Aqua-Hot System owners are encouraged to get annual analysis on these critical RV heating systems to keep them as worry free and reliable as possible.

Data from Sample #143902 (Actual Test Report Shown)



Aqua-Hot Testing vs. NRVIA Testing		
Test Description	Aqua-Hot Annual Service Kit	Certified NRVIA Inspector Fluid Analysis Testing
Freeze Point	✓	✓
Glycol Content	✓	✓
Corrosion Metals		✓
Contaminant Metals		✓
Corrosion Inhibitors		✓
Foam Test	Aqua-Hot	✓
Color	Aqua-110t	✓
Oil Contamination	Annual	√
Fuel Contamination	Aillidai	√
Magnetic Precipitate	Service Kit	√
Non-magnetic Precipitation	Service Ait	√
Odor	does not	√
Carrier Salts		√
Boiling Point	include any of	√
рН		√
Total Hardness	these tests	∀
Nitrite Level	CIIICA CEACA	√
Specific Conductance		√
SCA Number		√
Total Dissolved Solids		✓

¹ NRVIA = National RV Inspectors Association (<u>www.nrvia.org</u>). Locate the nearest NRVIA certified inspector at www.nrvia.org/locate .

