



Chesapeake Tartan 30 Association

ATOMIC 4 OVERHEATING CURE

John Macheski, T-30 #305, *Desiderata*, May 1998*

My Atomic Four was having problems overheating at high engine RPM and load. About the same time Karl Coplan, who owns T-30 #227, *Northern Light*, was having the same problem with his engine. We both had adequate cooling water flow, so it was either a problem with the thermostat or with scaling (salt scale built up in the cooling chambers of the block or exhaust manifold). My solution worked for both of us.

When I was in the Navy we cleaned our evaporators by running citric acid through them; it removed the salt scale without any damage to the base metal. For those who don't know, the evaporators boiled saltwater, then condensed the steam to get freshwater. Needless to say this *really* concentrates the salt in the water. The scale would be rock hard and several inches thick when we de-scaled. The citric acid was added to the regular suction and pumped through while the evaporators were operating. The scale just dissolved and got flushed away. When we were done they were very clean.

I checked with the chemical engineer at work and verified that acetic acid would also do the same job. Common vinegar from the grocery store is a solution of 5% acetic acid in water. I bought two gallons of the cheapest vinegar I could find, with the intention of running it through the engine. To run antifreeze through the engine (for winterizing) I use a temporary hose hooked up to the cooling water pump intake, and I planned to use this same hose for the vinegar.

After a few hours of running to get everything good and warm, I dropped anchor for the night, shut down the engine long enough to hook up the temporary hose and then poured all the vinegar into a bucket, with the end of the hose in the bucket. I started the engine and ran most of the two gallons through. As the last of the vinegar was sucked out of the bucket, I shut the engine down and let it sit for the night with the regular seawater inlet reinstalled, but isolated.

The next day completed the flush when I opened the seacock and got under way. The overheating problem was cleared. I don't know if I just cleaned the thermostat or de-scaled the engine, but I was back in business.

Karl Coplan did it a little differently. He also warmed everything up and attached a temporary intake hose running from the bucket to the cooling water pump intake, but then he also disconnected the hose that injects used cooling water into the muffler and recirculated that back to the bucket of vinegar. He ran it until the vinegar was pretty warm, then shut down and let it sit overnight also. This also cured his overheating problems. He is sure that his primary scaling was in the exhaust manifold. Either way is a pretty cheap and clean way of de-scaling the engine. However, disconnecting the exhaust cooling (i.e., by the used seawater) is not really recommended unless some other form of cooling can be supplied to the exhaust line.

This method can also be done as preventive maintenance. I would do it the same way and only about once a year.

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