

Winterizing a 427 with antifreeze recirculation on a 38 Sedan

Posted by Dick Morland on October 22, 2013

First -- This is gonna be a long one. If you are not into this technical stuff, leave now before I bore you to death :-)

Jim Polvere asked me to explain my winterizing recirculating system shown in the 410 Jack Stand discussion. Since this is a totally different subject (and to keep my boss, Chief Archivist Char happy) I'm starting a new discussion thread. The photo below shows the wastebasket catch bucket, the steel framework to hold the bucket, and the method of hanging it from the swim platform.



The 2 photos below show the details of the engine sea water pump box. I constructed this from 3/4" thick plastic stock with clear ends so I could see when the box was full. The support was 1/2" threaded rod, a strong spring, and thin wall tubing. You can see the box end curvature matching the hull, and the gasket material. The u-joint was an after thought and really was not necessary. You merely had to position the bottom of the support in the right location to squeeze the gasket equally on all 4 sides to get a good seal. The catch bucket has a small 12 volt bilge

pump which I used to initially fill the pump box. The petcocks on the sides of the box were so the bilge pump would have a vent while initially filling the pump box.





The 2 photos below show detail of the catch bucket and bilge pump. Note the 2 sill cocks. I tried to use garden hose fittings wherever possible.





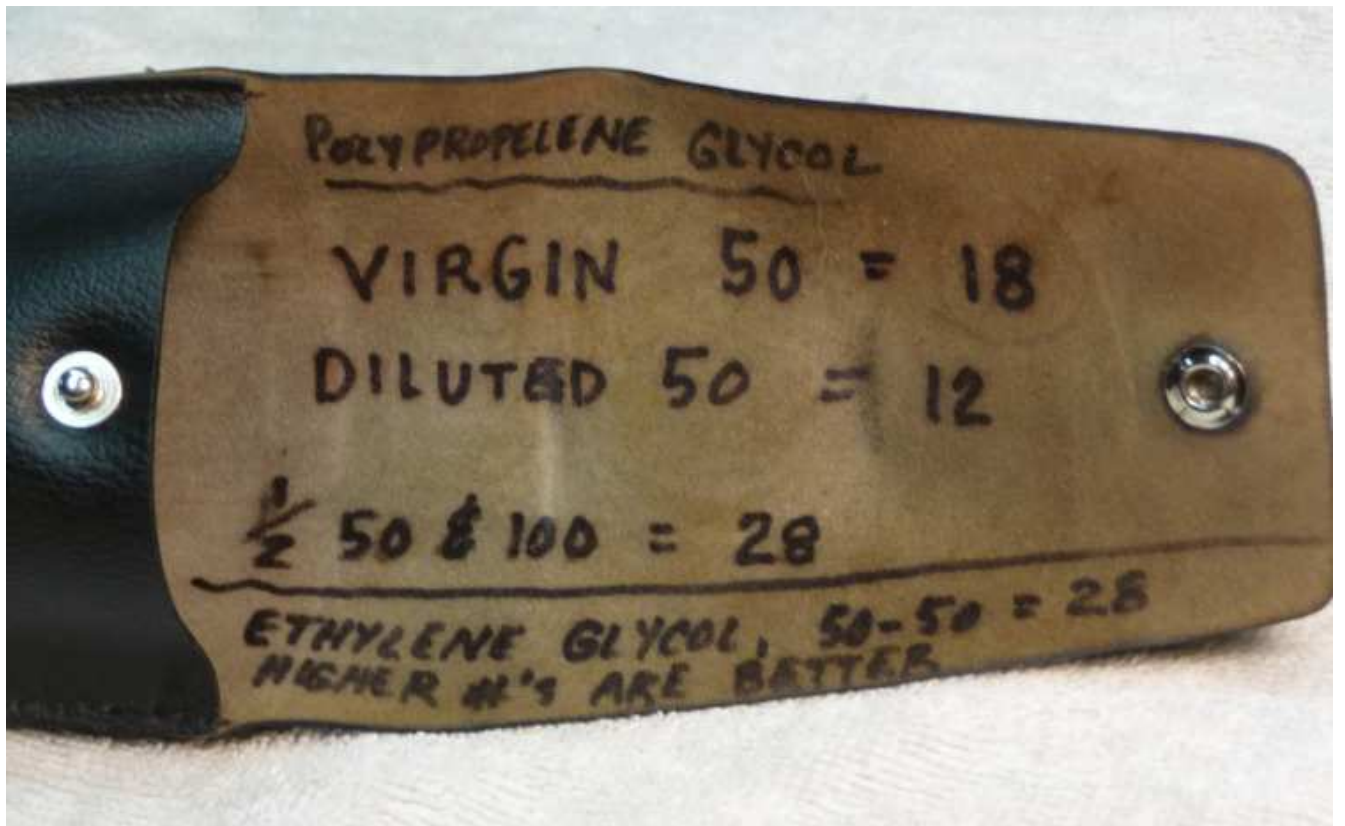
The picture below shows a 12 volt impellor pump, which is reversible by changing wire polarity. I built a small control box to reverse polarity, and thus the pumping direction. The picture shows it pumping into the box, but it can also pump out from the catch box. I used to manually pour antifreeze into the catch bucket, and also manually drain weak solution to refresh with virgin - 100 antifreeze, but I had to keep putting the cold beer down to do it (and I was getting older), so I semi-automated the operation. (Necessity is the mother of invention) !



The picture below shows yours truly attaching a 90 degree fitting to the exhaust pipe to better direct and catch the exhaust fluid into the catch bucket.



The 2 photos below show my industrial refractometer I used to check how strong the exhaust fluid was. Notice that in the second picture I had self calibrated this unit by mixing various strengths on antifreeze and seeing what they actually read on my unit.



OK, here's the operating procedure -- after everything is hooked up, I pump about 5 gallons of minus 100 antifreeze into the catch bucket. Open one of the petcocks on the pump box. Momentarily power up the catch box bilge pump until the box fills. Shut off the bilge pump, close the petcock, and have lovely assistant (Patty) fire the engine which should begin sucking from the catch box. In the picture above showing the 12 volt reversible pump, note the 18" long piece of 4" hose laying on the swim platform. I used this during the first minute or so of engine run to divert the exhaust fluid which was mainly pure water that was in the risers and exhaust system over the top of the box and onto the ground. I did not want to dilute the antifreeze in the catch box with roughly pure water. After about a minute, the color of the exhaust would change, indicating antifreeze. At this point lovely assistant would shut engine down, I would put on the 90 degree fitting to better catch the exhaust fluid, and finally pump more virgin antifreeze into the catch box to make up for what I dumped on the ground with the straight piece of hose. OK, now it's time for lovely assistant to re-fire engine and hand me a cold beer, cuz it's gonna take a while. A quick note here, once in a while toward the end of service life of the engine sea water impellor, the pump would not immediately pick up and suck from the pump box. The clear hose going from the catch box to the pump box allows you to see if the engine sea water pump is indeed pumping. If not, a momentary run of the catch box bilge pump would get things going. Now the engine is idling around 600 RPM, and everything is recirculating nicely. Nothing much to do until the stat opens at about 140 degrees. Patty would occasionally call out engine temperature to me, but I could pretty much tell by feel. Before the stat opens, when I would check the recirculating antifreeze temperature, it would check pretty somewhat numerically low on my refractometer, perhaps 15 or so. Inasmuch as I desired a reading of about 18 on my gauge which is the equivalent of virgin 50 below, 15 seems close. All of a sudden, the stat would open, releasing a whole slug of pure water that had been recirculating inside and around the engine and exhaust manifolds. All of a sudden, my refractometer readings would drop like a rock, and I knew the stat was starting to open. Now the stuff recirculating was really diluted and weak. Time to put the beer down and hit the reversible pump to pump most of the weak solution out and onto the ground. I have to only pump out enough to not uncover the bilge pump, or the engine sea water pump will be sucking air. Gotta move quickly at this point as the engine is now past 140 and we need to again reverse the impellor pump and pump a few gallons of fresh minus 100 into the catch box. OK, now the engine cools down a bit with fresh, cool antifreeze into the catch box. Now Patty is calling out temperatures quite often, as we are almost done. I keep checking the solution with my refractometer. It initially rises to perhaps 18 which is my goal, but I want to let the engine get up to about 180 degrees so I know the stat is wide open and there is no more pure water lurking somewhere in the cooling system. Usually, I have to pump a couple of gallons out of the box again and refresh with virgin minus 100 to finally get to 180 degrees and a refractometer reading that remains at about 18. Time to shut the engine down, go on board, hop into the bilge, remove the flame arrestor, and re-fire the engine to add fogging solution till I kill the engine and really smoke up the boat yard ! OK, time for a beer, then pump all solution out of the catch and pump boxes into a 5 gallon bucket. I'll reuse this stuff to start the other engine after I finish my beer and get everything transferred over to the other engine :-)

Simple, yes ?? Actually, I'm gonna have more time in this post than I would in doing one engine !!

--

Regards,

Dick Morland

A man spends the first half of his life learning habits that shorten the other half of his life.