Do as I say, Not as I did

by Gord Martin, SV Maggy Fields IV,A37

This is a story of a very frustrating air leak in my fuel system, caused by some bad choices I made about 5-6 years ago; the exact date is in my maintenance log on the boat, but it is too darn cold to go look now. It started with wanting to make sure I had a fuel pump backup in case of failure on my 35 year old Farymann diesel. I found out that I could not buy a rebuilt kit for the fuel pump nor could I get a new pump. It seemed like a good idea to have an electric pump as a backup. A bit more study revealed the fact that the fuel circuit had to be different for the electric pump, so I converted completely to the electric, removed the mechanical pump, and bought a second electric pump as my spare. Around the same time I replaced the engine fuel filter with a new Racor filter assembly. The original had been using 20 micron automotive filters while the Racor is 2 micron. The main point of this story is that, in the process of making all these changes, I inadvertently used three different types of thread sealer, none of which were recommended for diesel fuel. I learn all my lessons the hard way.

The problem started in the Murray canal on the way back from the Picton Rendezvous. I had spent a night at the wall and when starting the engine in the morning it started then stumbled a bit then ran OK for the day. All day I worried about the engine but it stayed running flawlessly. I anchored in Cobourg that night and in the morning EYC friends called from the reciprocal wall, saying someone is leaving, come on over. OK, I'll be there in a minute. Oops, the engine started then died. I have been through this before, so, jumping to the wrong conclusion, I quickly swapped the fuel pump, bled the system, and it started and ran perfectly. I was a bit puzzled as to why a fuel pump would fail at 120 hrs., as I had changed it at New York in '09. Next morning I started the engine and again it died after a few seconds, so obviously I was wrong about the fuel pump. It was the bleeding that did the trick. At this point I tightened all the hose clamps, and searched everywhere for a fuel leak, but nothing was visible. It seems that air can get in where fuel won't come out. All it took to get the engine running well for the whole day was to bleed the injector pump for about 2 seconds. I bled the engine each morning to get myself back home, all the while thinking of possible causes. The most likely suspect was the copper washer on the bleed screw. I met Charles Gallimore of E&C Marine walking the dock at Whitby, and he confirmed that the bleed screw washer was a likely cause. He suggested getting a nylon washer as the the copper tends to work harden, but I had no luck finding nylon washers at Home Depot or Canadian Tire.

After a long hard motorsail to windward, I got to EYC, unloaded my boat after dark, and lost the bleed screw in the gravel parking lot! Murphy strikes again! Luckily I had noted some measurements, and I have a machine shop as a last resort. Next day I went to Rovan Diesel and they searched but could not find a bleed screw anything like I needed, so I said never mind, I can make the bleed screw, all I need is some 6mm copper washers, which they had.

I made the new bleed screw and installed it with a new washer. It ran great for 2 or 3 days, then the same old problem. Then back to analyzing; what could cause a vacuum in the fuel system? Could it be plugged filters; I was shocked to find that I had 280hrs on the filters, so I changed filters and it ran great;

for a week or two, then the same old problem. Next I changed the copper washers on a banjo fitting, replaced a piece of hose which looked a bit soft, and made a new nylon washer for the bleed screw. Same thing; it seemed perfect for a few days then it would start and die as before. Toward the end of the season it needed bleeding every time I started up, so I got to be very fast with the operation.

At this point there was nothing left to check but all those ¼ NPT brass fittings which I had changed a few years ago. I was not going to go through all that labour without knowing I had the proper thread compound, so I went off to Harper Diesel and asked what they use for sealing threads in fuel systems. $25.00 and five minutes later I had a small tube of pink goo made for Detroit Diesel by Loctite. I stripped out the 7 or 8 fittings, cleaned them thoroughly, applied the new sealer, popped the hoses on, bled the system, and it started and ran perfectly. I could only test it 5 or 6 times before winterizing the engine, but I am quite sure that the problem has been licked. I wonder what old Murphy will throw at me next year.