

# Ask Steve – December 2014

Hi Steve,

I will try to be as concise as possible.

I have a 1997 32' Nordic Tug, Invictus. I moor my boat year round in Bella Coola, BC. This is a remote marina about 300 miles in a straight line north of Vancouver, BC. Bella Coola is cold in the winter with temperatures often dipping to -25C (-13F) for extended periods.

I winterize the boat thoroughly and then plug in two 120V heaters set for freeze control, one in the stateroom and one in the salon. Twice now shore power has been interrupted during a cold snap and the heaters continued to run until the battery bank was at absolute discharge, which did not take very long. As everyone knows this is very hard on batteries.

I have tried every combination of inverter on/off and battery switch on/off. With the inverter off the batteries will not be drawn down but then the battery charger does not work. With the inverter on, the battery charger works but the batteries will be drained if the power goes out. I want the battery charger on to maintain full charge and so that I can rest easy that the bilge pumps will run if needed.

My question for you: I would like to know if there is a way to run 120V heaters with my setup without the risk of completely discharging the batteries. Can you help me with this?

Thanks,

Peter Shaughnessy

Invictus

Bella Coola BC

**Peter:**

This is an age-old problem with inverters set to automatic mode, i.e. they charge when shore power is available and invert when it's not. You neglected to share the make and model of your inverter, however, most manufacturers enable users to set the default for the inverter to avoid automatic switching to invert mode. I suspect yours is no different, however, to enable this mode you'll need to access the inverter's programming mode.

Additionally, today it's relatively inexpensive to install a system that will send you a text alert if you lose shore power, if DC voltage drops below a predetermined level, or if bilge water is rising (one of these systems was profiled in the SDMC Ezine a few months ago). For a vessel that is stored in the water over the winter a system such as this makes very good sense.

If you are unable to reprogram the inverter, then another alternative would be to install a small, stand-alone battery charger. This could supply a maintenance charge, while the inverter/charger could be left off.

Sincerely,

S D'A

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**Steve,**

The windlass motor gets corroded from all the salt water. I've got it out of the boat now and would like to repaint it.

Any suggestion on which type of paint could help with keeping

the corrosion down. I painted it less than two years ago.

Thanks,

Walter Conner

S/V Flying Cloud

Taswell 44

Hailing Port: Seattle, WA

**Walter:**

Windlass motors are often glorified starter motors, their casings are steel, and they frequently live in a 100% humidity environment that would put a terrarium to shame. The results are, therefore, predictable. Making matters worse are chain lockers that also store rope rode, which acts like a sponge, keeping the environment wet and, in the tropics, steamy, further challenging any painted surface.

However, there is hope. Ideally, if you could disassemble the motor completely, isolating the exterior shell/stator from the rotor and other parts, you could have it shot blasted. You would then have to thoroughly vacuum, blow and otherwise clean it out. An electric motor shop may do this for you; they often shot blast components during the rebuild process. Barring this, you would have to thoroughly sand the surface. Once the surface is sanded and clean, it should then be painted with a two part epoxy etching primer such as Interlux 545 or an equivalent. Follow the manufacturer's instructions, two part anything, and especially two part etching primer is very user unfriendly, you should only apply it in a well, i.e. force ventilated area while wearing a respirator and eye protection.

With this approach, your windlass motor should remain corrosion-free for a relatively long period. If you are able to improve ventilation in the chain locker, with a passive or

solar vent for instance, that too would help minimize the corrosiveness of the environment. For an added measure of protection, once installed, you could also spray the motor with CRC Heavy Duty Corrosion Inhibitor, its wax-like consistency is among the most corrosion resistant, and long lasting coatings of which I'm aware.

Sincerely,

S D'A

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**Hi Steve,**

I hope you are well. I continue to be very impressed by your Ezine articles and have recommended you to several friends looking to acquire new boats. Thanks for what you do!

When you have a moment, I'll appreciate your comments re: my San Juan 48. We are presently cruising the down east circle route but hope to be back in time to see you at Trawlerfest, Baltimore in September.

Per your suggestion, I replaced my fuel [vacuum] gauges (atop my Racor 750 manifold) with the ones you recommend (see the attached order). The problem is that these gauges have not yet moved from zero, even after about 50 hours of cruising. Also, I note my old gauges registered positive and vacuum pressures. The new ones only show vacuum. Thanks much for your comments.

Best Regards,

Mike Davis

**Mike:**

Thanks for the note and your comments.

It's not unusual at all for the gauges to not move from zero after just 50 hours of run time. In fact, if the fuel is clean they shouldn't move for much longer than that. My rule of thumb is, if you need to change filters more often than every 1,000 gallons of fuel use, then you have a tank contamination issue. Filter replacement would be indicated by any vacuum in excess of 7" Hg.

If you want to confirm the gauges are working, and you should, you can do so by slowly closing the fuel supply (not the return valve if there is one) valve to the engine while it's idling in neutral, you should see the needle begin to rise, confirming it is reading the induced vacuum.

You say you replaced existing gauges, and they were pressure/vacuum, I assume these were in the middle of tandem Racor assemblies? That's where these gauges are typically found, rather than on top of the filter housing itself. While you could get compound pressure and vacuum gauges from Wika/FN Cuthbert, they aren't necessary; your system should never "see" pressure. If you were to purchase stand-alone vacuum gauge kits from Parker/Racor, they would be pure vacuum alone.

With my resignation from PassageMaker, I'm afraid I will no longer attend Trawler Fest, so I won't see you there, however, I will be lecturing at other cruiser-oriented events in the future, including my own Trawler and Motor Vessel Technical Training Workshop in April 2015, you can learn more about it at <http://stevedmarineconsulting.com/trawler-workshop/>

Sincerely,

S D'A

**Ask Steve questions should be addressed**

to [asksteve@stevedmarineconsulting.com](mailto:asksteve@stevedmarineconsulting.com). Please include your full name and home port. Concise questions are more likely to be answered.

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