

Ask Steve – March 2015

Hello Steve,

Long-time fan, first time asking. I need to replace the clear fuel level indication hoses (sight gauges) on my 350 gallon diesel fuel tanks.

They're so stained/discoloured that I can't see the fuel level in my tanks. What type of hose should I get?

Thanks & Regards,

Wil N. Stevenson

KK42 'Renovatio'

Wil:

Clear sight glass hoses are well known for becoming opaque after a few years of use, so I'm not surprised yours are in need of replacement. Unfortunately, to the best of my knowledge, no clear hoses meet the ABYC two and a half minute fire resistance standards. Therefore, when used in this application it's imperative that the valves at the top and bottom of the sight glass remain closed other than when checking fuel. This is true of all sight glasses, they should be equipped with valves top and bottom and they should remain closed. Spring loaded, normally-closed valves are well suited for this role. In the event of a fire, the hose will melt, however, with the valves closed the amount of fuel that would spill into the flames is minimized.

While there are no flame compliant clear hoses, there are clear hoses specifically designed for fuel applications. One such hose is Clear-Flo. It's tinted yellow, which can make reading fuel slightly more difficult (not as difficult with

red dye fuel), however, unlike conventional clear PVC hose it resists hardening. You can learn more about it at <http://www.newageindustries.com/clearflo-clear-pvc-tubing.asp#fuel>

Sincerely,

S D'A

Hi Steve,

What are your thoughts about running a twin engine displacement trawler on one engine for extended periods of time, say 4 to 6 hours?

Other than closing the seacock on the non-running engine, what else would you recommend?

Thanks in advance for your reply.

Regards,

Bill Moorhouse

Grand Banks 46

Bill:

This is a great question and one that's near to my heart. So many twin screw vessels are grossly over-powered when operating at displacement speed, engines are often run at less than 20% load. A host of maladies can result from such chronic under-loading, including the formation of sludge in crankcase oil, as well as carbon accumulation in rings, valves and exhaust systems, not to mention poor fuel economy.

Operating on one engine at a time can offset some or all of these issues. Running one engine at 40%-50% load is far more desirable than operating two at 20%, the higher load is more efficient, and reduces the likelihood of the aforementioned under-loading side effects. Additionally, you can benefit from reduced wear and tear, oil changes and other hourly-induced maintenance.

If you opt for this approach you must familiarize yourself with your transmission operating requirements, most transmission manufacturers provide specific guidelines for lay shaft operation or wind milling. In some cases they require that the engine be started periodically, to activate the transmission's oil pump, providing lubrication for gears. If your stuffing boxes are water injected, as a test, operate on one engine and monitor the temperature of both stuffing boxes for at least an hour. Neither should exceed 30°F above ambient water temperature. If the lay shaft temperature rises above this threshold, stop the test; you will need to install cross over plumbing to provide cooling to the non-running engine's shaft. However, before doing so, ensure that with such an arrangement water cannot back flood the exhaust system, and thence the engine. If you do not have a self-draining exhaust system, then the water supply between the non-running engine and the stuffing box will need a valve, and it will need to be closed when running in this mode. Regardless of whether you operate on one engine or not, twin engine systems with stuffing box cross over plumbing and non-self-draining exhausts should already have this valve, as it would be needed in the event you are forced to run on one engine, in the event of a malfunction.

As an aside, you do not have to lock the shaft of the engine that's not running, provided you follow the transmission manufacturer's instructions. The conservation of energy laws dictate that it takes no more energy to spin a shaft than is required to move a stationary propeller through the water.

Depending on vessel type and operating speed, you may or may not realize an increase in fuel economy when operating on one engine. Some vessels do, while others don't. Even if you don't realize greater fuel efficiency, the other benefits of reduced oil and exhaust fouling, and maintenance, make this protocol well worth considering.

Sincerely,

S D'A

Steve,

[Where inverter chassis grounding is concerned] since the negative 12V cable is going to the negative bus bar, and the chassis ground needs to go to the negative bus bar, why can't you jump from the chassis ground to the negative 12 terminal? I have a Magnum 2812 inverter/charger, and when I posed this question to their technical support person (since mine has the smaller green wire), he really didn't have an answer for me or could tell me why the larger cable is recommended in marine applications but not necessarily for non-marine applications.

Jim Wolfe

Defever 44

Jim:

This is an excellent question and one that isn't asked enough. I'm a little disappointed the Magnum employee couldn't answer it, however, in all fairness, it's not their mandate, it's ABYC's.

Think of it this way, and to use an analogy, in household wiring, for a receptacle for instance, there are three wires, the black hot (similar to DC's positive), the white neutral (the "negative), and the green safety ground. You could jump the safety ground connection to the neutral and effectively achieve the same end, the neutral is ultimately grounded (called a bootleg ground), however, doing so is prohibited. The notion is, the safety or chassis ground is so important, it has to be its own, dedicated, normally non-current carrying wire whose only job it to carry fault current and then only long enough to trip a circuit breaker or blow a fuse. And, of course that wire needs to be large enough to carry the maximum possible fault current, that which could be supplied by the DC positive.

I hope that explanation helps clarify the reasons why this is required.

Sincerely,

S D'A

Ask Steve questions should be addressed to asksteve@stevedmarineconsulting.com. Please include your full name and home port. Concise questions are more likely to be answered. For more information on the Ask Steve column, please visit www.stevedmarineconsulting.com/ask-steve/.

For more information on the services provided by Steve D'Antonio Marine Consulting, Inc. please e mail Steve at info@stevedmarineconsulting.com or call 804-776-0981.