

May 2018 Newsletter

Photo Essay: Chafe

It's the bane of every seagoing vessel, taking its toll on everything from dock lines and wiring to sails and hoses. Every onboard system must, therefore, take this ever-present enemy into account during system design, installation and service.

Bulkheads present one of the greatest challenges, every hose and wire that passes through one must be protected, using chafe guard, loom or sealant. The holes themselves should be chamfered, removing all sharp edges and protrusions. On steel and aluminum vessels the danger is exponentially greater, as virtually every penetration, stringer and frame represents a potential knife-like sharp edge, lying in wait for an unsuspecting soft component to cross its path.

How do you find and prevent chafe? While the answer is a simple one, the task isn't; you need to inspect your vessel and her systems on a regular basis, both formally and casually. A few years ago I ran an article written by long-time industry colleague and friend Kiko Villalon called The Boat Genie in the Cigar Box. In it Villalon explains, in his own unique fashion, the value of looking for problems, before they become problems.

In the accompanying image, a transmission shift rod linkage is in the process of sawing its way through a pressurized raw water hose. If the rod had managed to complete its incision, seawater would have sprayed over the transmission and aft end of the engine and associated wiring, air intake, shaft coupling etc. When I was able to inspect it more closely I estimated there were mere fractions of an inch to go before the hose would have been breached.

Check your hoses, both on and off the engine, as well as wiring, steering gear and other critical components for this stealthy onboard gremlin.

Ask Steve

Hello Steve,

Just read your article "The Skinny on Coax Cables". Thanks.

You mentioned power loss when running a length of coax. Recently I asked other boaters, do I really need an antenna on top of my 30' sailboat mast or would one mounted lower be OK for coastal cruising. I was told it should be up high but your article made me wonder if the antenna were mounted below with only 6 to 8' of cable would it actually broadcast stronger than high up with 40' of cable?

Thanks,

Andy Miklos

Andy:

When it comes to line of sight communications such as VHF, altitude is king, the higher the better as it equates to greater range and probably trumps power to the antenna. Ideally, you'd use a good low loss cable and have the height as well, with the antenna mounted at the top of the mast. However, if you did not have the option of using low-loss cable, I think I'd go with a short(er) cable run (but not in the cabin, a spreader or even stern rail), which means a lower antenna, which would mean less loss, and a very good quality antenna. In that scenario you'd be no worse off than most power vessels.

Steve,

I have a question about your February 2016 Cruising World article on fresh water flush. We flush outboards after use, so why not diesels?

My real question: What do you think of Rydlyme which has Phosphoric acid and Barnacle Buster which has Hydrochloric acid as cleaners for heat exchangers. Could they not eventually harm metals or other items in the system?

Regards,

Andre Vasu

Andre:

This question has been posed many times, and as such I have a somewhat prepared response, it follows.

Undiluted muriatic acid, also known as hydrochloric acid, may very well be the worst chemical you could possibly introduce into your seawater system. It is so harmful that companies such as Dometic have banned its use, see http://trac-online.com/sites/default/files/Dometic_Condenser-Cleaning-Change.pdf.

Phosphoric acid, on the other hand, is relatively mild, it's what's used in Trac Ecological's Barnacle Buster (Rydlyme relies on dilute hydrochloric acid, you had them reversed). However using straight phosphoric acid presents several issues. Although mild, phosphoric is still an acid. As part of Trac Ecological's manufacturing process, they add several inhibitors to the blend to protect the metals that will come in contact with Barnacle Buster. Rydlyme's website indicates that it is significantly diluted, presumably to achieve a

similar effect. While I believe either product will work well, provided it's used in accordance with the manufacturer's instruction, because of my lengthy experience with it, my preferred product is Barnacle Buster, particularly because it's designed with marine cooling systems specifically in mind, rather than general household or industrial use.

Hi Steve,

Can you answer a question about raw water strainers? On a 38' sportfisher build, we're planning a 2" through-hull fitting & seacock in the aft bilge going into a strainer/filter to supply raw water to a deckwash faucets pump, bait livewell pump, freezer compressor condenser circulation pump and possibly a water maker.

My question is about mounting height for the strainer. Forespar/Marelon says; "Water Strainers should be installed a minimum of 12 inches (305 mm) above the static (vessel moored) waterline when- ever possible", and Vetus says 6" above water line. The problem is that the water pumps supplying these systems run only intermittently and the pump manufacturers claim they can never run dry or else risk loss of pump prime or damaging the pump. Without a complex array of airtight one-way valves it is likely air will be drawn back into an above waterline strainer when the pumps are off. I doubt these smaller pumps would be able to consistently pull enough vacuum to draw water 12" above sea level (especially the freezer condenser cooling pump – a 0.25" ID outlet magnetic drive pump supplying a trickle of raw water to the compressor when needed). I conclude that the only solution is to mount the strainer below sea level to be certain it is always flooded to assure uninterrupted water supply to these pumps.

Steve, do you see anything wrong with mounting the strainer below sea level?

And thank you for the unique information you generously supply for the marine industry. You provide that rare and hard-earned truth of real world experience to designers, technicians and boat owners – a valued complement to our “textbook” training.

Tony Dean

Tony:

You’ve posed a good question, and I must also commend you for reading the manufacturer’s installation instructions, something far too few marine industry professionals do. I strongly suspect this requirement, from these manufacturers, is designed to minimize the possibility of flooding and sinking in the event the strainer fails, or is assembled incorrectly (I’ve seen this happen, the basket is installed incorrectly and it prevents the lid from sealing, a boat sank overnight at the Annapolis Boat Show for this reason several years ago). They can, therefore, be forgiven for this recommendation or requirement, to an extent. Having said that, aboard most vessels, an installation requirement of this sort, or installing a vented loop after the pump, which would keep the pump full of water, would be inconvenient. In fact, I might be able to count on one hand the number of strainers for systems of this sort I’ve encountered that were mounted above the waterline; in most cases installers go out of their way to install strainers low in the hull to ensure prime is maintained.

To answer your question, I agree, check valves and/or risers are cumbersome and trouble-prone, it’s not a route I’d take, and it will make life hard on non-self-priming pumps. The Forespar product at least leaves you an option for below the waterline mounting, without violating the installation instructions, making that a viable option, while remaining compliant. If you chose to use the Vetus product, knowingly in violation of their instructions, you’d probably be no worse off, you simply wouldn’t be compliant with their instructions

and any failure would be your responsibility.

You do have a high water alarm in every compartment, right? Is it wirelessly enabled to send a text message in the event of flooding? If not, these systems are now affordable enough to warrant their installation on almost any vessel.

Hi Steve,

I was doing a bit of research on shaft seals and came across the article written on 11th July 2012. I found it very informative, thank you.

I would like to know, is changing the seal something that can be done while the boat is still in the water or is it compulsory to have the boat taken out of the water to perform this task. I have recently replaced my gearbox and have a feeling that I have disturbed the seat of my drip seal, it is now dripping.

I am fairly new to owning a boat and probably should have replaced the drip seal at the same time as fitting the new gearbox.

Any advice please.

Regards,

Phillip Warren

Phillip:

I presume you are referring to dripless, as opposed to conventional stuffing box seals. If so, the most common lip seal style, manufactured by Tides Marine, is designed to be serviced while the vessel is ashore or afloat. However, to do so with relative ease, a spare seal must be present on the shaft, it's usually retained in a black seal carrier. If no

spare is present, the shaft must be separated from the coupling, not an insubstantial task, but one that can be performed, carefully, while the vessel is in the water in most cases, and a new seal (and spares) slipped over the end of the shaft, and pushed down into the seal housing.

In either case, be sure to follow the seal manufacturer's instructions.