Editorial: Dormant Vessels – Photo Essay: Dryer Vents

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From the Masthead

In what now no doubt feels like a lifetime to many, a couple of weeks ago, in an effort to inspire readers as we approached what seemed like troubled waters, I offered a quote from Sir Winston Churchill, "If you are going through hell, keep going". Those words seem more apt now than ever, some parts of the country, and the world, are indeed going through hell. Is there light at the end of the tunnel? I believe the answer can be summed up with another Churchill line, "It's not the end, it's not even the beginning of the end, but it is the end of the beginning". But what does the 'end of the beginning' look like? I'm certain no one knows the answer to this question, not definitively, however, whatever it may be, I'm sure I speak for all when I say I hope it comes soon.

Never the less, I remain firmly convinced that this nation, and those who fight along side us, shall vanquish this unseen biological foe. In your discussions with your family, children, friends and colleagues, I implore you to remain positive, and optimistic; doom-saying and fear-mongering serve no purpose but to sap the energy and drain the fight from those around you, and energy is precisely what we will need in

the days and weeks to come.
Earlier today I received the following note from a friend, “Steve, I fired up my diesels yesterday and just sat between them in the engine room for a while. [It was] very therapeutic!” As far as I’m concerned, that was a great idea, one I highly recommend, and far better than watching the news. In that spirit, I’ve received a number of emails from readers and clients over the last week, inquiring about maintaining vessels that are being used far less than usual, if at all. How do you keep systems from deteriorating while in an idle state? If your vessel is still in winter storage and remains decommissioned, there’s not much you can do other than check on her, *if of course you are able to do so without violating any local or state stay at home guidelines, and while maintaining proper distancing procedures*. For vessels that are afloat and commissioned, perhaps the best maintenance protocol for any machinery involves its regular use, and barring that a simulation thereof.

If you are unable to get underway, you can still go aboard, *again provided you are not violating any guidelines or orders,* and conduct a visual inspection. While in the engine room, make sure all is in order and that raw water supplies are open and clear, and then start and run the main engine(s). Allow them to run for 10 minutes or so and then (if they are diesels, they won’t reach operating temperature if not loaded, that’s OK for what’s being accomplished here), after checking to make certain dock lines are secure, place them in gear one at a time, forward or reverse, whichever is safer for the docking arrangement, at idle speed. Monitor lines and cleats, and shift out of gear if there is any sign of unusual stress. If all is well, leave running for 2-3 minutes. Doing so will circulate water over the shaft, and inside shaft bearings and stuffing boxes, resupplying those areas with oxygenated water, and thereby reducing the likelihood of crevice corrosion. After shutting down the engine(s), check the stuffing boxes for unusual leakage. Then, start the genset, allow it to warm up for a few minutes and then apply loads, letting it run for

10 minutes or so as heavily loaded as possible. Turn the helm from hard over to hard over, doing so will circulate hydraulic fluid, or exercise cables and sheaves, and lubricate seals and shafts. It will also move oxygenated water over the stainless-steel rudder shaft. Finally, go through the remainder of the vessel's systems, pumps (run some fresh water into the bilges to test and exercise bilge pumps), blowers, hydraulics, thrusters, crane, water maker etc., running each through its paces.

While there, look at the vessels around you to make sure they are floating on their lines, it's during unusual or diminished use periods like this that pumps may clog or fail. If something doesn't look right, let the owner or marina operator know.

In 2010, with the onset of the World Financial Crisis, I authored a detailed article offering guidance on long-term vessel storage. I sincerely hope it isn't needed, however, some of the tips provided there may be useful under these short-term conditions.

While it's all too easy to be overtaken by national and world events, following routines like those described above can help keep your vessel ship-shape, as well as providing a sense of normalcy to what is, for the moment, an abnormal world.

K.B.O. (hint, it was how Churchill ended many of his phone calls)

Photo Essay: Dryer Vents

A few years ago, I inspected a new vessel, and in doing so took the opportunity to review the installation instructions of the vessel's vented electric clothes dryer. I was uncomfortable with the cheap plastic duct hose used for the vent, and was curious as to what the manufacturer recommended. The directive could not have been clearer, saying, "Use only rigid metal or flexible metal 4-in. diameter ductwork for exhausting to the outdoors. Never use plastic or other combustible, easy-to-puncture ductwork." Since then I've read the instructions for roughly a dozen different makes and models of vented dryers, and this is typical of virtually every one, they all recommend metallic or flame retardant duct work.

The statistics from the National Fire Prevention Association (NFPA) are sobering, approximately 14,000 home dryer fires are reported each year, and over $200 million in damage, with a little over 30% of those the result of failure to clean the dryer and ductwork.

And yet, the vast majority of dryer installations I encounter, aboard recreational vessels, utilize plastic or ‘metalized plastic’ flexible (the familiar “slinky”) duct material. There are a number of problems with this approach, including its corrugated interior, which traps lint; it is easily crushed or punctured; and above all else it is not flame-retardant.

Dryer duct material should be made from metal, rigid duct where possible, and barring that flexible (a flexible section, often called “transition duct” is usually needed between the dryer outlet and ridged metallic duct, enabling the dryer to be removed from its alcove), purpose-made metal ducting, both of which are available at home improvement stores. Proprietary flame retardant, flexible dryer duct is also available as well.

When using flexible transition duct material, make certain it is UL 2158a Listed; typical language from an installation guide might include, “Only those foil-type flexible ducts, if any, that comply with the Outline for Clothes Dryer Transition Duct, Subject 2158A, shall be used.” The duct must be “UL Listed”, rather than UL Approved (there is in fact no such thing as ‘UL Approved’), or UL Recognized. Follow dryer manufacturer instructions, however, in most cases flexible transition duct length is limited to 8 feet.

At the very least, clean your lint filter with each use, and depending on use clean the ductwork at least annually. Avoid very sharp bends in the duct and flattened areas, something I also encounter frequently. If your system utilizes the old-school flexible plastic or fabric duct material, it should be replaced with the above-detailed compliant material.

Ask Steve

Dear Steve:

I understand the reasons for “properly/adequately loading” a diesel engine, and with propulsion engines, it’s a simple matter of setting your rpm’s. With a diesel generator, it’s not so simple. I have a Northern Lights 5kw generator, Model M673L2.3, that my manual says runs at 1800 rpm, but how can I determine if it is properly loaded? My AC ammeter shows me the load when I switch on water heaters, air conditioners, microwave, etc., but it does not indicate the load from my battery charger. My DC ammeter will give me the net amps I am putting into my batteries, but again, no indication of what that means in terms of load on the generator. My inverter/charger is a Mastervolt Mass Combi Model 12/4000 (120V & 230V). My vessel is a 2008 Antares 44 sailing catamaran, the last one built by PDQ in Canada.

Thanks for the opportunity to ask you directly about a specific question. I hope mine will be of enough interest to others that you can publish a response.

Sincerely,

Alan Bradley

Alan:

Your AC ammeter should provide you with everything you need to determine the load on your genset. A 5 kW genset will produce about 41 amps at 120 volts. Therefore, if you are drawing 20 amps (or 2400 Watts), you are, roughly speaking, loading the genset to 50%. You can use this Ohm’s Law calculator to Wattage, current or voltage of you have either of the two.

I am puzzled however, when you say that the AC ammeter does not register the load from the battery charger. That’s curious and on the face of it appears incorrect. If the

battery charger is wired before the shunt for the AC ammeter, that would explain this peculiarity, however, I can think of no reason why this would be the case.

Using some simple arithmetic, you can calculate the charger's load by simply converting the current entering the batteries to Watts, multiply the volts by the amps to arrive at this figure, and then add that to the genset's load.

Finally, you might find this article of interest http://www.proboat.com/2015/02/why-you-shouldn-t-go-easy-on-a-diesel/.

Hi Steve,

I read your very interesting post on Trawler Forum about Fuel cleaning, thanks for it.

May I ask what type/ brand of extra fuel filter do you recommend on a Grand Banks 42′ powered with 2 x 300 hp 3116 T Caterpillar, and also what fuel additive?

I already have RACOR filters installed aboard.

Thanks in advance and best regards from France,

Olivier Mirabel-Chambaud

Olivier:

When it comes to fuel filtration, the best approach is relatively straightforward. Tandem (double) Racor turbine MAXX series filters, using 10- or 30-micron elements, check with your engine manufacturer for recommendations on the micron rating (do not use 2-micron elements, these are not designed for primary filtration) are your first line of defense against dirt and water. The filters should be of the MA variety, which means they are flame retardant, they include

a heat shield and metallic UL-approved drain valve. Ideally, they would also include the optional water sensor and alarm, as well as a vacuum gauge (the vacuum gauge is standard on tandem turbine filter housings). You can read more about primary fuel filtration details here http://stevedmarineconsulting.com/fuel-filters-simplified-2/

Secondary filters, the ones installed on the engine, should be either Caterpillar original equipment, or Donaldson synthetic media filters. The latter are acknowledged as the Cadillac of fuel filtration, I've used and trusted them for years. You can read about monitoring secondary fuel filters here http://stevedmarineconsulting.com/photo-essay-march-2015/

As far as additives go, I've written about this subject on many occasions. In short, don't expect them to do too much, they can't fix a neglected engine or clean a dirty fuel tank. Having said that, for general everyday use I recommend Stanadyne Performance Formula, and for storage I recommend Gold Eagle Brand StaBil. You can read more about additives here http://stevedmarineconsulting.com/diesel-fuel-additives-part-i/ and http://stevedmarineconsulting.com/diesel-fuel-additives-part-ii/

Good morning Steve,

I met you at the Nordhavn 40th Aiinversary Rendezvous. I am the fellow who installed the Ultrasonic hull cleaning system on my N57.

I am planning to install a diesel fired hydronic system on my N57-36 and will have Melt Emms do the install.

We are going to put the diesel heater where the existing water tank is in the aft port corner of the lazarette. We will run

the exhaust up through the deck inside the propane locker, moving the one propane tank inboard and putting in an airtight bulkhead between the tank and the exhaust.

I have an existing propane solenoid and sensor system in the propane locker. However, I do NOT yet have an automatic fire extinguisher system in the lazarette, which I will install as part of this upgrade.

My question: is this an absolute no-no in installing the heater directly below the propane locker?

What else should we do to prevent any catastrophic fire event due to a propane leak?

Your thoughts would be appreciated.

Regards

Alan Hannebauer

Alan:

There is no specific ABYC standard regarding the placement of heat sources below propane lockers. Nor is there a standard regarding the placement of the hydronic exhaust in a compartment adjacent to the propane locker. Heat alone is not a concern per se for propane, while flame is. Because they are not ignition-protected, hydronic diesel furnaces do represent an ignition source, i.e. in the event of an LP leak they can cause an explosion. Therefore, the gas-tight integrity of the LP locker most be absolute. If the exhaust heat was high enough to ignite the fiberglass or timber separating the lockers, that too would be an issue, however, you’d have a serious problem whether or not LP gas was present.

Furthermore, one of the requirements for ABYC compliance calls for horizontal LP locker hatches, a feature your vessel does not possess. While it’s impractical to change this without

moving the locker, you should make certain the locker vent is compliant with ABYC guidelines, as well as the door (it should not be vented) gasket.

An LP sensor should be installed in the LP locker and it should be tested regularly using a butane lighter, rather than the unit's built-in test feature. I would also install a sensor low in the lazarette under the LP locker.

This material contained in this article may be useful to you as you work though this project.

http://stevedmarineconsulting.com/wp-content/uploads/2014/03/LPGas169-02.pdf

Steve,

I read an article that you had written for PassageMaker in 2011, entitled "Stainless Steel and Corrosion".

Exhaust systems were included in a list of applications for stainless alloys, pointing out the possibility of crevice corrosion.

The next paragraph includes cupronickel in a list of alloys that are preferred over stainless, in certain applications. It has been suggested to me that a wet exhaust system could be fabricated using cupronickel.

Can cupronickel be used for a marine wet exhaust system?

Thank you for your consideration,

Mike

Mike:

In a word, yes, cupronickel can be used successfully for wet exhaust systems, I've had many made using this material. It's

not as popular as it once was, however. Today, the most corrosion resistant, readily available alloy used for wet exhaust system fabrication is called Inconel. Inconel is used for heat exchangers in power plants and in nuclear applications, it’s very durable. Not every fabricator can work with it, it requires special welding skills, but there are those who do; I would guess more than those who work with cupronickel.

The next best alloy would be 316L.