January 2019 Newsletter

Photo Essay: Seacock Installation

While it's self-evident that seacocks play a vital role in a vessel's watertight integrity, I continue to encounter improperly installed examples on an all to regular basis. Among the most common oversights are incompatible threads, excessive leverage caused by extended hard plumbing, and incorrectly selected materials such as brass, PVC and other non-reinforced plastics.

From an installation perspective, a variety of bad habits also persist within the industry. These include the use of sub-standard backing block materials such as solid timber (it's prone to splitting), high density polyethylene or 'Starboard' (too slippery and not stiff enough) and conventional plywood (too rot prone).

In the example shown here, the backing block is undersized, so much so that the seacock's flange is overhanging, offering little if any reinforcement. In the installations I review I often wonder if boat builders and yard technicians have lost sight of the purpose of a backing block. Its primary mission is to more widely distribute the load imparted by the hardware its serving. In order to achieve that goal, it must cover an area larger than the flange, the greater the load the larger the backing block should be. In the case of seacocks, the backing block diameter should be *at least* two inches greater than that of the seacock flange, providing a minimum of an inch between the flange and backing block edge.

Finally, if the seacock flange is equipped with holes for fasteners, as the one shown here is, the holes should be filled with fasteners. In other words, the flange must be lag, machine screwed into threaded inserts, or carriage bolted

through the hull. Such added reinforcement helps to further secure the seacock assembly and prevent it from breaking or twisting in the event it is struck with a heavy object.

Ask Steve

Hi Steve,

Fuel guy pumped a mix of gas and diesel into large yacht. What is thorough/ best repair?

Your help appreciated.

Andrew Bate

Andrew:

It’s difficult to provide a definitive answer not knowing the contamination rate, however, assuming the engines haven’t been run, the lowest risk approach in a case like this is to pump the fuel out of the tanks, which will almost certainly call for opening and accessing the tanks to ensure the fuel below the pick-up tube is removed. Depending on the size of the tanks and how much gasoline was added, this may or may not be necessary, as the remaining tank “bottom” will be diluted with new diesel fuel (diesel and gasoline will mix readily). Caution must be used in the clean out/pump out process as the added gasoline will lower the diesel fuel’s flash point, potentially making an otherwise safe fuel vaporize and become explosive at room temperature.

If the tanks aren’t opened to ensure complete removal, and diesel is added, a sample of fuel should be drawn from the tank after refilling and sent to a lab for testing, to determine gasoline content, before engines are run, and fuel should be circulated through fuel supply plumbing to ensure no

high concentrations of gasoline exist. At the very least it should be sniff tested, any aroma of gasoline is too much.

Depending on the dilution rate, the fuel may have to be taken away as contaminated gasoline, which is hazardous waste. After that has been carried out, the tanks should be filled with diesel, and if any fuel plumbing is connected to tank bottoms or is gravity fed, fuel should be circulated through these fuel lines, to ensure no vestiges of gasoline remain.

Hello Steve,

Hope the New Year is finding you and your family well.

While in your Deltaville seminar last fall, you mentioned a Stanadyne product to use. I believe it was the performance formula but not sure. Our Cummins 5.9bta has 2800 hrs. on it and surveyed to be very strong.

You also discussed coolant levels/leaks. We are seeing a few ounce drop in coolant recovery tank levels once cooled, after 16 hrs or so of running. A slight odor of coolant can be noticed near the water heater and coolant lines feeding the tank. No viable leaks nor main engine exhaust anomalies noticed.

Oil sample results pending.

Thank you in advance for any assistance.

Sincerely,

Pat MacDonald

Pat:

The product is Performance Formula: http://stanadyneadditives.com/performance-formula/, I recommend it regardless of engine age, or hours.

As far as the coolant leak goes, that’s small, but any amount of consumption from the recovery bottle is too much. Unlike oil, it’s not normal to use coolant. If you smell a coolant odor but see no leakage it’s possible it’s cooking off from a hot surface. Look for a yellow or greenish crust on hot surfaces, if it’s a small leak the liquid component will evaporate leaving behind this powder or crust. If you have isolation valves for the water heater on the engine, and you should, try closing those to see if the consumption and odor go away, if they do you know the source is the water heater plumbing.

Steve,

I just purchased a new boat with an anchor wash down system supplied by the fresh water tanks. Who would want to rinse the anchor chain with valuable fresh water when there are millions of gallons of sea water outside the boat? We only have 160 gallons of fresh water on board and like to spend extended periods of time at anchor so we want to conserve our fresh water.

I know sea cocks are a very important subject to you and I too realize their importance. Is it approved by ABYC to have multiple systems tied to one sea cock? I have an air conditioner sea cock that I would like to put a “T” into and then run a new line up to the bow where the anchor wash down piping is installed.

From a practical standpoint it would be easier to “T” in rather than cut a new hole in the boat and run a completely separate line.

Best regards,

Bill Denison

Bill:

It’s not unheard of to use fresh water to rinse an anchor chain, to prevent rust, however, such systems are usually only present on vessels with water makers. Even in those cases, both fresh and salt water wash down capability is usually present. On a vessel without a watermaker, it’s folly, and even if it had one, you’d want salt water wash capability as well.

As far as seacocks and sharing them goes, there are no ABYC prohibitions regarding this, however, the T fitting should not be connected directly to the seacock, doing so would increase its leverage and likely prevent it from passing the ABYC 500 lb/30 second static load test. If the seacock is close to the waterline, there is the risk that the wash-down pump you install will pull air through the HVAC raw water circuit. If that occurs, you may need to install a check valve. These are notoriously unreliable, and as such my recommendation would be to avoid installing one unless absolutely necessary.

Steve,

I’m a marine electrical engineer and also an avid boater. I just read your blog on smoke detectors and was wondering if you know of ANY system that would allow wireless monitoring of smoke, bilge, panic alarms onboard a vessel (and inside boat sheds). With alarm outputs locally and at a centrally monitored location. This technology is just too simple and the need too great. We have seen several marina fires in the Seattle area over the last few years and I’m sure most could have been prevented.

Thanks for any help!

Joe Payne

Joe:

There are several remote vessel monitoring systems on the market, from the relatively simple Siren Marine to the sophisticated Maretron systems, and others. To the best of my knowledge, the former does not have a specific smoke alarm sensor, however, a generic smoke alarm with auxiliary contacts, these are readily available, could be used to send a trigger signal. Maretron does offer smoke and CO sensors for their system.

Seafire offers central station smoke alarms, however, it is not able to send out remote alerts off the shelf, although it could be combined to do so using one of the existing alerting systems.

You might find this article of interest as well http://stevedmarineconsulting.com/onboard-alarms-part-ii/.