

Propane on Board

Carsten Nachtigahl CS 36T *Polaris*

Almost everybody has propane on board. It is used for cooking, heating and the BBQ. Propane is a very clean fuel to use. However it has certain drawbacks. The fumes from the flames (combustion products) contain a lot of water. It is recommended that you ventilate while cooking. Do not try to heat the cabin with your stove top burner. You will load up the boat with moisture which will condense on your walls.

Propane is also heavier than air. Should you have a leak in your system, it can fill up your boat with gas without you being aware of it and, providing a point of ignition, it can cause disaster

Natural gas is a much safer fuel. It is lighter than air, hence any leaked gas will rise and escape through ports/hatches/vents. The problem is its availability. There are few filling stations in this area. I do not know of any outside Vancouver. Therefore, natural gas is not an option for most BC boaters, which means we have to learn to live with propane. Also, the bottles used for natural gas are much heavier.

To improve safety on board, I have installed a propane monitor system. It gives us confidence that everything is alright when we light the stove. There are many propane sensing systems on the market. Xintex has several models ranging from basic to very sophisticated. But, they do not come cheap. Prices are in the \$200 to \$300 range. In addition, the connection at the bottle should be soap-tested whenever the bottle is changed.

Of course, you could rely on your nose to detect a gas leak. (Propane is normally odourless; Mercaptan is added to give propane its distinct odour.) But, as we get older, our noses may not be as sensitive as they used to be. Relying on your nose is risky.

Propane bottles should be stored in vented lockers. On my CS 36T, there are propane lockers aft on both the port and starboard sides. The locker has an opening at the bottom, which is piped to a thru-hull fitting just above the waterline. This opening serves two purposes. First, it drains any water that gets into the locker. Second, it serves as a vent to allow propane to escape if the pressure relief valve should activate or if there is a leak in any of the connections in the locker. (The pressure relief valve is provided so that, should the bottle be exposed to sunlight or otherwise heat up such that excessive internal pressure develops, the valve will release propane, thereby reducing the pressure. The pressure relief valve is set to open at 350 psi. Normally, this heating should not occur if the bottle is stored in a locker in the hull. But, if on the pushpit, it could heat up sufficiently for the relief valve to be triggered.)

Propane bottles have to be re-certified every ten years. During the recertification process, propane tanks are pressure tested, receive a new valve with pressure relief and are given a new paint job.

The USA will not accept our propane valves. So, if you plan to travel to the USA for an extended period, you may want to have your propane bottles retrofitted with a US-acceptable fill valve.

We have had severe rusting on our propane bottles. Often, we have had to replace bottles before the ten year life is up. I believe that a large part of the rust problem is due to seawater entering through the drain hole. We can (should) not plug the drain/vent hole; but, we can put extra protection on the bottle. Under dry conditions, I cover the bottom half of my propane bottles, up to the weld, with a suitable plastic bag and tape it to the bottle with masking tape, making sure to get all the air out. A small white plastic kitchen bag is just the right size. I have tried it now for one season and I feel there is a lot less rust on the bottle than in previous years. The bag, of course, must not have any holes. My concern that there may be condensation on the bottle under the bag seems unwarranted.

Propane bottles should be checked and repainted every year with a good marine enamel available in many paint stores. When I repaint my propane bottles, I first remove as much rust as possible with a steel brush or scraper. With the bottle upside-down, I give the bottom half, up to the weld, one or two coats of paint. Then, I get a piece of small clear plastic hose, approximately 3/16 ID, cut it in 2" pieces, slice it open lengthwise and slip four or five pieces over the rim at the base. This way, the paint on the base does not get damaged when I turn the bottle right side up to paint the top half. To prevent the brush from going hard while the paint on the bottom of the bottle dries, I wrap it tightly in a small plastic bag and put it in the freezer. It stays soft in there for weeks. To avoid this annual job, some boat owners purchase stainless steel bottles. But, these are very expensive.

From the extensive discussion recently on the CSOA e-mail "thread", many CSers have had difficulty in finding suitable replacement propane bottles. The size of the required bottle is dependant on locker size. For my 1987 CS36T, I use an 11 lb. bottle that is 16½" high x 9½" diameter. To find the size of bottle for your boat, measure your propane locker carefully. Then, phone every propane distributor in your area until you find a bottle that will fit. Of course, it is desirable to maximize the size of bottle.