

# Fuelling the fire

Let boat buyers be wary when purchasing a new fuel tank and avoid problems down the track...

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I was prompted to write on the importance of maintaining fuel tank standards following a reader's correspondence. He had encountered an unfortunate incident while attempting to install a new stainless fuel tank into his boat. Basically, his old steel tank was deemed to be past its useful life and he was advised to purchase a new stainless tank. Subsequently he approached a manufacturer ordered a new tank and was informed it was to be constructed to the 'ASL Standards' (Australian Standards).

But upon delivery of the new tank it was quite evident that it leaked. Furthermore the tank was incredibly flimsy and inferior to his old tank. However, it seems that he received little sympathy from the tank maker and therefore decided to re-install the old tank into his boat after having it repaired.

There are several lessons to be learned from this unfortunate incident...

After manufacture, a pressure test should be performed on a new tank as a matter of procedure to ensure no welds or seams or part of the tank could leak. What does a pressure test consist of?

Listed below is an explanation, according to the USL code (section 9, Engineering) subsection 15.3.1- Fuel tank pressure test

A fuel/oil shall be subjected to a test equivalent of 2.5m of fresh water above the top of tank or to the maximum head to which the tank may be subject in service, whichever is greater.

Discussing this matter recently with a tank builder, I was informed that 51lbs/sq in of pressure is applied to all tanks built to USL Code Survey requirements and a certificate (paper) is issued if the vessel is a commercial vessel. So it's clear that

the tank really wasn't tested thoroughly, as the leak would have been detected. As for the reported flimsy construction of his new tank, there is also a section in the USL Code which quite specifically and carefully allows a tank manufacturer to build tanks with a predetermined wall thickness (varies with the size of the tank).

To that effect, I refer to USL code (section 9, Engineering) subsection 15.2 - Freestanding, non-portable metal fuel tanks 15.2.4 (with a diagram that portrays the tank size-to-thickness ratio).

All very nice to if you have a commercial vessel built to Class Survey Standards. But here's the rub... If you are a Private boat owner, no such luxuries abound for you. The Department of Transport also offers no Protection.

The fact remains that a backyard tank manufacturer can build a flimsy, dangerous tank creation, take your money, claim that its built to any old standard, Pat you on the head, then walk away and read about you in the newspaper when the lot finally gives way. Further, no certificate needs to be issued. (Anyway, they get lost.. Why not stamp the tank with numbers?)

So, watch out you boaties. If its new tank time, choose your builder carefully. Get it all down in writing (i.e. the standard the tank is going to be built to, all of the physical dimensions, details of baffles, etc). In fact everything you can - including the details of any proposed 'pressure tests'. If the builder is bona fide, he won't object.. Or will he?

Here's what you should be looking for in Australian Standards.

AS 1692 - 1989 Tanks - Tanks for flammable and combustible liquids: This covers commercial grade, low-carbon

steel for fuel storage. If fiberglass tanks are made, the BS4994 and AS2634 standards are the ones that apply.

While still on the subject of tanks and contents, fuel contamination has been rather high-profile of late. So if's appropriate to mention that the dangers of fuel bugs, or 'microbiological contamination', remains quite high. Bacteria and yeast enter the tank as minute spores. They live in the tank walls and when conditions are right (i.e. 21-35°C, plus moisture), they multiply doubling there numbers every 20 minutes (or so) feeding on hydrocarbons, sulphur, and combined with oxygen from the water, they literally eat the energy from the fuel reducing its power and properties. Adding a fuel biocide can promote the problem as when the bacteria die, a sludge forms in the tank, creating problems for fuel filters, piston rings and injectors.

However you can bypass the problem by fitting a fuel treatment (such as De-Bug clean fuel Units), which is designed to eliminate all microbial contamination from the start. Developed specifically for the marine market, these units are reportedly reducing fuel consumption; require no wires or moving parts or no further outlays for

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fuel biocides.

Oh yes, what about that oil), smelly, faded old plastic fuel tank with the seized-up, rusty fuel gauge? How long has that been cooking in the sun, decaying as the ultraviolet rays weaken its little red molecules? Take care here, they can fail at any moment. If you are purchasing a new one, double check it is manufactured or conform to the equivalent of AS/NZS Standard 290699 For Portable Fuel Containers (Plastic) Under 25lt. There are many suspect 'cheapies' on the market. Also, it is important to destroy the old one before taking it to the tip as it can be recycled into the community.

Remember, fuel explosions kill!