

First Choice Marine Technical Group



First Choice
Marine

SERVICE ADVISORY

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Through-Hull Corrosion

Written by – MARTIN CHALLIS	Date – 6 th Dec 2007	#Pages - 3
Approved by –	Yachts Affected - Mostly Beneteau and Jeanneau	
Warranty Item # -	Attached Document Link Area -	

Many of you will remember the problem Sunsail and Moorings have had with early corrosion of the through hull fittings in Beneteau yachts.

This issue has gone on for many years so we rarely bought replacements from Beneteau hoping we would get better quality by taking our chances elsewhere.



I have even had some technically analyzed by Lloyds in London to prove the material spec used in the manufacture. Every time the results came back that they were just brass which is not good for marine use. The problem with brass is it's just copper and zinc (often CuZn36 which is 64% copper and 36% zinc)

This is actually OK as long as you have a good zinc anode close by. But as soon as your anode is wasted away (remember they don't work once they are about half gone) then the zinc in the through hull takes over as the zinc anode and you soon end up with a weak copper that just crumbles away. (It is considered to have de-zincified when this occurs). Most of the zinc anodes are undersize so half way through the season its stops working and from then on the through hulls begin to corrode and quickly turn from brass to copper.

The thickness of the through hull is important as the thinner it is the quicker the corrosion penetrates right through. And of course everyone is saving money on materials so the thru hull fittings in the last 10 years are thinner than the ones we had 20 years ago.

TESTING THRU' HULLS

We have heard it said that you just need to look for the copper red color on the through hull. But unless brand new they will all be de-zincified on the surface and showing a copper red color. What we need to know is how deep it is. You can use a knife or file to scrape the exposed surface of the flange and check the depth of the red before you get to bright yellow of the brass. But that still does not prove what its like inside where it normally fails.

The best test is "the hammer test". Give it a tap on the side with a medium weight hammer. If it breaks off it was close to failing so needed immediate replacement anyway. If it does not break it is OK for now. We don't know if it's half corroded away but at least we know its not 99% gone. This test has proven quiet successful and I don't know of any other way it can be done without removing the through hull for analysis. This should be done on every haul out, once the boat is 2 or 3 years old or earlier if the through hull looks suspicious in any way.

It's best not to do it in the water although I have done it when I was particularly worried about the condition just prior to a long distance deliver. When we did break one off in the water we could at least say it was easier to sort it out with the boat on the dock than it would have been for the skipper in the middle of the Atlantic.

PROPELLORS

In recent years we have also seen our propellers corroding. It is almost certain they are also made of brass. However with the shaft nut zinc is so close they should be well protected. But again only if the zinc is effective.

The photos below show the copper red color of de-zincified brass. The corrosion is so deep that the surface of the blade is cracking just prior to the blade falling off.

The 2nd photo shows the blade broken off and you can easily see the depth of the corrosion.



Testing the prop is easier

Just dig a small groove in the surface with a knife, file or small grinder and check how deep you have to go through the red de-zincified material before you get to bright yellow brass.