First Choice Marine Technical Group



SERVICE ADVISORY

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Through-Hull Corrosion

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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 getter 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.

The best quality for through hulls is Aluminium Bronze but that is very expensive so the production builders will not use. But adding a small amount of arsenic to brass increases its resistance to corrosion in seawater and is considered to be quite acceptable for marine use.

I can confirm that Group Beneteau changed to this marine grade just over 1 year ago so although we all need to still be on our guard and watch out for early corrosion on our existing boats, the new boats from 2007 should be much better and hopefully get through at least the charter life without failure.

The new material spec is CuZn36Pb2As. That means it has 2% arsenic.

However the zinc anodes are there to protect all underwater metals so even this new spec will slowly corrode if the zincs are not replaced in time.

So when replacing though hull we are now OK to buy from Beneteau or Jeanneau. These are made for them by Plastimo so we can buy them direct from Plastimo if easier. They have been designed specifically for Beneteau and the design is quiet distinctive so easy to identify.

- The inside of the flange against the hull is recessed for using a sealing ring instead of sealant
- - the inside at the top is a hexagon shape for a special tool to stop it tuning as it is being fitted



Below are the Plastimo part number for the thru hull fittings and sealing rings If we order from Beneteau just give the purchasing department the size

52718	THRU HULL FITTING 1/2" (15-21) LG 56
52719	THRU HULL FITTING 3/4" (20-27) LG 56
52720	THRU HULL FITTING 1" (26-34) LG 56
52721	THRU HULL FITTING 1" 1/4 (33-42) LG 56
52722	THRU HULL FITTING 1" 1/2 (40-49) LG 56
52723	THRU HULL FITTING 2" (50-60) LG 70

55582	RINGS FOR THRU HULL FITT 1/2" (20 PIECES)
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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 if 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 weigh 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 it 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 2^{nd} 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.