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REPORT OF A CONDITION SURVEY CARRIED OUT ON THE VESSEL:

[redacted] Beneteau Oceanis 473

Accredited Member YDSA

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CONTENTS.

A. GENERAL NOTES

The following survey was carried out at [redacted]

[redacted]

Scope

The survey was carried out as a pre-purchase measure to assess the structural and material condition of the vessel. Where equipment was tested this is detailed in the text. References to condition are in relation to the vessel's age (i.e. good condition does not necessarily mean new).

Recommendations are restricted to:

(A) items which should be addressed before the vessel is used and/or which may affect insurability and;
(B) items which should be addressed in the near future order to prevent future problems.

Recommendations are printed in red for quick reference within the body of report and are also listed in the summary. They do not cover cosmetic or minor defects, although suggestions to address these may be included.

The survey is for the client above. No liability is extended to anyone else.

Limitations

Parts of the vessel that were covered, unexposed or inaccessible due to fixed panels, mouldings etc. were not examined, so I cannot say these areas are free from defects other than where specified.

No fittings or fastenings were removed for examination other than where specified. Note it is not possible to detect some latent and hidden defects without destructive testing which is not possible without the owner's consent.

The mast was stepped so could only be inspected from deck level.

Conditions

Conditions were dry and warm both days, air temperature 25°c, humidity 20% and dew point around 20° below ambient temperatures. These are good conditions for moisture meter readings. On the sea trial, wind was southerly 1-2, slight swell.

SUMMARY

[redacted] The boat is in good condition but has a significant fault to the underwater hull moulding by the keel.

The damage appears to have happened when the vessel was hauled out, the base and top of the rudder being damaged where this was pushed upwards, and a crack developing through the gel coat to port of the keel where it is assumed it struck the ground in the same incident. These faults are unlikely to be a result of manufacturing defects or heavy weather. They are repairable but may involve removing the ballast keel if there is damage to the laminate beneath. It would be possible to use the boat safely in moderate conditions (as has obviously been the case with the present owner), but the damage would need to be repaired if the boat were used as designed in open waters, for example on the proposed delivery trip from Spain to the UK.

The significance of the fault was not immediately apparent at the time of survey. A separate report was issued covering this in more detail.

Other than this she has been well used and looked after with all equipment appearing to be regularly serviced and updated. There is some minor cosmetic damage to the hull gel coat. All other faults listed below are normal for the age of the boat.

Recommendations

A. Defects which should be rectified before vessel is used and/or which may affect insurability:

1. A split to the hull gel coat and laminate to port of the keel needs to be ground back to firm material and repaired. This may involve removing the keel – it would need to be re-inspected after removal of damaged material. The internal moulding needs to be repaired (A).

2. The rudder is damaged at its top and base, both need to be repaired using epoxy filler and gel coat after the vessel has been ashore for several weeks to allow drying (A).

3. The engine water intake has a spur to supply a deck wash which is lying loose and closed with a ball valve – this needs to be wired and plugged shut (A).

4. The electric bilge pump is not working (A).

5. The liferaft was due to be serviced in July 2010 (A).

6. The life buoy light needs new batteries (A).

7. There is no fire blanket (A).

B. Defects which should be rectified in order to prevent future problems:

1. Corrosion to the ballast keel needs to be ground back to bare metal and re-primed when the boat is next ashore (B).

2. Gel coat damage to the stem and port side aft should be filled (B).

3. A chip to the gel coat at the port coaming aft should be filled (B).

4. The bow thruster oil bottle needs to be filled and the unit checked for the source of oil leakage beneath (B).

5. The aft toilet outlet sea cock is stiff and should be serviced (B).

6. Close above the waterline there is a plastic skin fitting starboard aft; this is becoming UV hardened and should be replaced with a bronze one (B).

7. There are two runs of guard wire through the stanchions, both loose (B).

8. Securing chocks for a rubber dinghy are slightly loose (B).

9. The starboard dorade ventilator cowl is loose (B).

10. A cleat at the base of the mast is loose (B).

11. There is a rod kicking strap, the upper split pin of which is broken and should be replaced (B).

12. The genoa sheets are worn with the braid splitting - these should be replaced to prevent jamming on the winches (B).

13. The genoa has a vertical tear at its foot. The luff is loose and pulling out of its foil, the lower section of which seems to be a replacement section. The sail needs to be reset (B).
14. The after engine mounts are corroded and should be greased (B).

15. There is corrosion around the cooling water pipework of the gear box (B).

16. The exhaust skin fitting bolts are corroded and should be replaced at the next annual haul out (B).

17. The gas hose is beginning to chafe slightly at the back of the cooker where it catches a hard edge. It should be replaced with armoured hose (B).

18. There is a slight leak around the waste pipe of the forward toilet (B).

19. The heater exhaust outlet securing clip is corroded (B).

C. VESSEL DATA

Dimensions taken from brokers details and not checked.

LENGTH OVERALL	:	14.3m
BEAM	:	4.3m
DRAFT	:	1.7m
DISPLACEMENT	:	11,000kgs (ballast 3600kgs)
BUILT	:	2003 by Beneteau, France
HIN	:	FR-BEY Partially illegible
REGISTRATION	:	French registration 11097
FUEL CAPACITY	:	430 litres
WATER CAPACITY	:	480 litres
ENGINE	:	78hp Volvo TMD22 dIesel,

USE OF MOISTURE METERS

A 'Sovereign Quantum' capacitance type moisture meter which measures both shallow and deep seated moisture was used to check for ingress of moisture into the GRP laminate. References to moisture meter readings throughout the text are in relation to a relative scale of 0-100, not moisture content as a percentage of dry weight.

Readings of between 0-15 are considered dry, 16-20 low but of no concern, 21-30 medium and approaching the point where risk of moisture related defects developing is becoming significant, 31-45 high and at a level where the risk of moisture related defects being present but not yet physically detectable is significant, 46-60 is very high and often accompanied by physically detectable signs. 61-100 is extremely high and indicative of possible laminate damage in addition to osmotic blistering.

Readings are considered in conjunction with the period the vessel has been ashore and the weather conditions when the readings were obtained. Boats built in the last 15 years are generally far more moisture resistant and will dry out quicker.

High moisture content (i.e. greater than 30) is not generally a structural defect in itself and should be expected in older boats. It also possible for readings to be increased if the boat has an epoxy barrier coat or a copper powder and resin based antifouling. If moisture has been absorbed, the likelihood of problems occurring are higher. The actual state of the laminate cannot be completely guaranteed without destructive testing followed by chemical analysis. The opinions in this survey are based on all the evidence available at the time, but without destructive testing.

D. Hull, Deck and Structure.

D1. Keel.

The vessel has a cast iron bulb keel which is secured to the flat underbody of the hull moulding, bedded in sealant. It is secured with nine stainless steel studs. Externally there are no signs of damage to the actual joint between hull and keel (but note next section re. damage to laminate alongside the keel). The mastic within this joint has retained its flexibility.

There is a rust bleed through at the forward part of the keel (shown) which will need to be ground back to bare metal and re-primed when the boat is next ashore (B).

Internally, all the studs appeared to be tight with no signs of leakage or undue corrosion.

Fresh antifouling had been applied to the forward edge of the keel.

D2. Hull below Waterline.

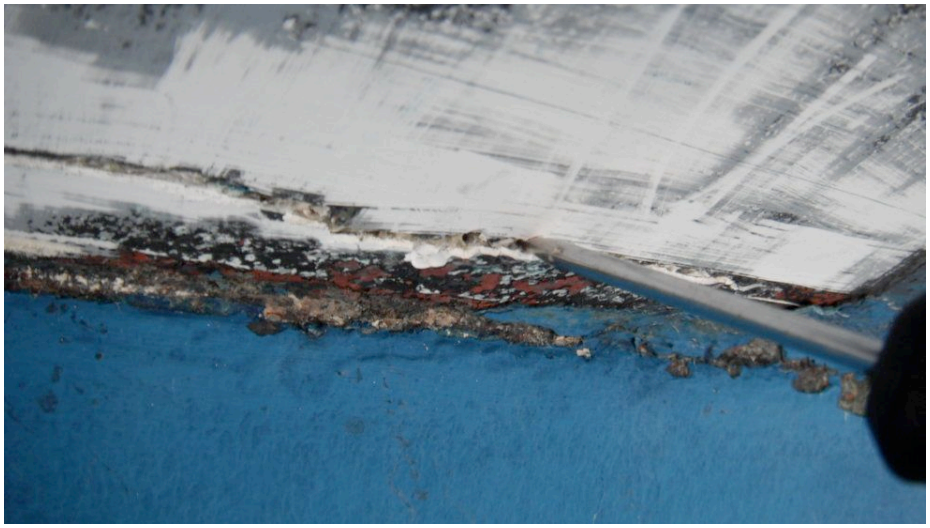
The hull moulding is GRP with cored horizontal bands in the topsides. Additional strength is provided by an extensive internal moulding which is bonded to the hull.

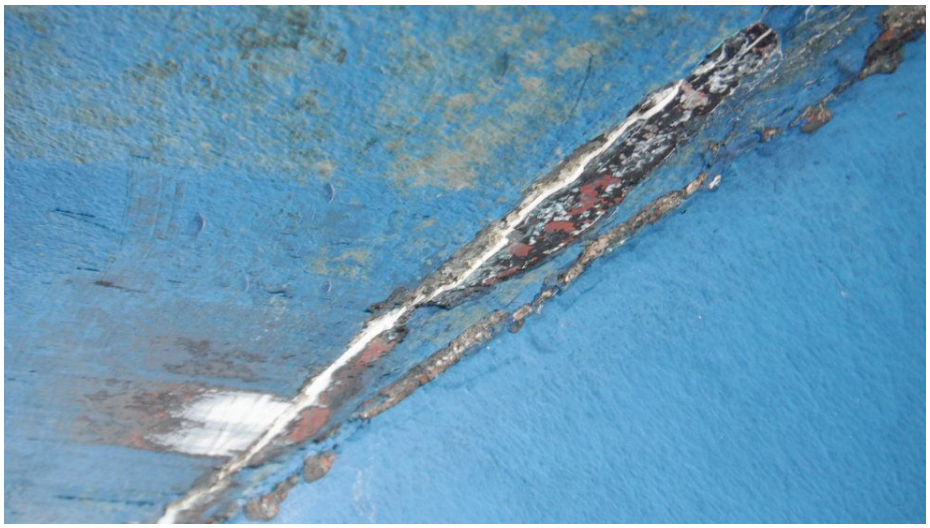
There is a short skeg to support the stern tube.

The boat was initially seen ashore where it had been for about a week.

Three faults were apparent; damage to the rudder base which had recently been repaired, damage to the top of the rudder and a crack penetrating through the gel coat on the port side of the keel at its widest point. This is about 25cm long and 1cm out, parallel to the centreline.

The crack has displaced the surface down by about 1.5mm alongside the keel and the gelcoat is still attached to the laminate. This is significant because it means there is likely to be internal damage to the laminate in an area which would be highly stressed when the vessel heels in strong winds.





Inside the boat the internal moulding is cracked in the same area (example shown) and new flow coat has been applied.

Although it is impossible to be certain, it is unlikely the damage occurred as a result of heavy weather or a manufacturing defect; the boats have a good reputation for build quality and I have never heard of similar damage on others of this class.

The most likely explanation follows on from the owners description of how the base of the rudder was damaged by it striking the edge of the hauling out area when the vessel was last lifted ashore by travel hoist. This may also have damaged the top of the rudder (see section E1), as it moved up within its bearing and hit the hull. That would have caused the entire boat to tilt forward, striking the keel and forcing it sideways. The fracture is at the widest point of the ballast keel where the leverage would be greatest. The matter should be take up with the boatyard who presumably have already admitted liability for the damage to the base of the rudder (which was seen repaired).

Whilst it should be possible to use the boat safely in moderate conditions, it would not be safe to use the boat where she could be exposed to heavy weather such as the proposed delivery passage from Valencia to Brighton.

Repair would involve grinding back the damaged area and inspecting the laminate beneath. If there is any sign of internal separation where the hull is bonded to the keel this will have to be removed, all loose material removed and re-laminated. The internal moulding would need to be similarly ground back and re-laminated where it is cracked (A).

The laminate around the rest of the keel was closely examined and hammer sounded and no signs of similar damage found.

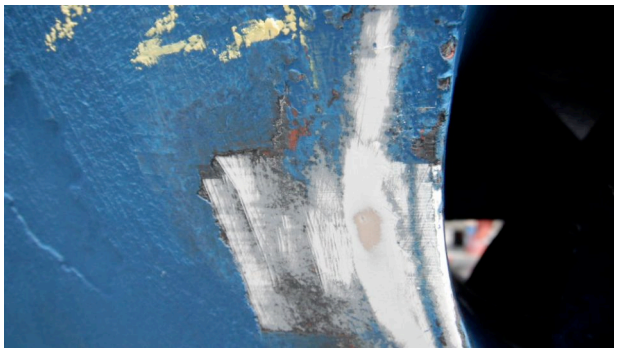
Elsewhere the entire underwater area was visually inspected and hammer sounded. No signs of osmotic blistering were found and nor any other signs of delamination from hammer sounding.

No signs of deflection were seen by way of the supporting struts with the vessel was ashore.

Sample areas for moisture meter readings were prepared by removing the antifouling back to the gel coat and examining this through 10x magnification. No signs of wicking or pimpling were found beneath the antifouling. There are black specks within the gelcoat which appear to have been caused by aeration and or contamination when it was mixed. The following readings were noted:

Shallow setting	Deep setting	Location
25	30	Bow thruster port side
30	19	Port side midships
28	13	Forward of keel
48	50	Over damaged area port of keel
30	26	Same area starboard side of keel
30	21	Port side keel aft of damage
30	26	Starboard forward
28	16	Starboard midships
29	15	Starboard aft
20	19	Stem
100	100	Rudder, 3 sets of readings, all saturated, see section E1.

Taken in conjunction with the absence of any physical signs of moisture related defects and with the exception of the damaged area, the readings are low and show the rest of hull moulding is in satisfactory condition at this time.



The bow thruster tube was inspected and lightly hammer sounded both inside the hull and out and found to be securely laminated into the structure. An area of thin gelcoat was found forward of the bow thruster to port (shown).

Moisture meter readings above the waterline were between 0-8 deep and 15-16 shallow, also considered low.

A blue antifouling coat is adhering well but has lost its effectiveness and will need recoating. There is a build up of 2-3 previous coats over a grey primer.

rest of survey removed