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‘ _____ ’

Pre-Purchase Survey

Report Date: 27th November 2019

Survey Date: 25th/26th November 2019

Place of Survey: Tribunj Marina, Vodice, Croatia

Vessel name: _____

Vessel Type: Catamaran Sailing Yacht

Builder: Lagoon

Client

Mr. _____

XXXXXXXX

Length Overall: 44' 61" (13.61m)

Beam: 25' 26" (7.70m)

Draft: ~4' 26" (1.30m)

Built year: 2009

Builder: Lagoon Yacht (Beneteau Group)

HIN no: XX-XXXXXXXXXX

SSR: Not seen

Engine Make: Yanmar

Model: 4JH4AE

Fuel Type: Diesel

*Above taken from various sources, not checked.

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1. About the Survey and this Report

Terms & Conditions

This Survey was carried out under the Yacht Designers and Surveyors Association current Terms of business which were e-mailed to the client prior to the survey.

Limitations

- We have not inspected woodwork or any other parts of the structure which are covered, unexposed or inaccessible and we are, therefore, unable to report that any such part of the structure is free from defect.
- In some cases it is not possible to detect latent and hidden defects without destructive testing, not possible without the owner's consent.
- Where repairs, further opening up or dismantling is required, additional decay, damage or necessary work may be uncovered.
- The engine, tanks and other normally installed mechanical equipment were in situ which limited inspection and examination in these areas.
- A Sovereign Quantum marine moisture meter, a capacitance-type moisture meter was used. The calibration of the meter was checked on the day of the survey, prior to readings being taken. Readings are taken in the relative mode, which ranges from 0-100. The values are regarded as an index and do not represent moisture content as a percentage of the dry weight. Where appropriate both shallow and deep modes were employed. Direct comparisons with other meters, be they Sovereign or others are not valid.
- The vessel was not surveyed with respect to any particular code or standard or navigation body's rules or bylaws unless specifically stated. No documentation or compliance with any regulations has been checked as part of this survey. No guarantees or warranties are given or implied with respect to the vessels suitability or fitness for purpose.
- The vessel was inspected on the hard at Tribunj Marina, Vodice, Croatia. Access to the hull was generally good except in areas where the boat was resting on posts.
- The vessel had not been UHP water blasted to remove any fouling to the hull. The hull was generally free of fouling.
- The vessel had been coated in a number of layers of black anti-fouling. Coupons of antifouling were removed, to establish moisture meter readings as part of the survey.
- This report carries no warranties regarding ownership of the vessel or any outstanding mortgage, charges or debts which there may be on the vessel.
- This report has been prepared for the use of the commissioning client Mr. Omer Knaz and no liability is extended to others who may see it.

Scope of Survey

This is a Pre-Purchase survey and its purpose is to establish the structural and general condition of the vessel. Where items of equipment have been tested this will be stated in the text.

The survey is not a parts and labour guarantee and it should be noted that defects may exist in the vessel that the survey could not detect due to limitations of time, vessel presentation and the range of tests acceptable to the owner.

- Please note that where reference is made to condition in all cases this must be considered in relation to the vessels's age, for example: very good condition should not be taken to mean new condition.
- A general inspection of the engines installation and systems was made, but this is a visual inspection only and an item has only been operated if stated. It should be appreciated that some components may appear serviceable but be found defective when run under load and for a prolonged period.

Recommendations

Recommendations will be restricted to those defects which should be rectified before the vessel is used, (or with a given time span if specified, and items which may affect insurability).

Recommendations are listed at the end of each section, labelled with priorities listed below:

- **Dangerous:** Items which must be repaired prior to the vessel being re-floated or used for habitation/navigation. Vessel deemed uninsurable with this issue.
- **Urgent:** Items which are not classed as dangerous, however, should be repaired preferably prior to the vessel being re-floated or used for habitation/navigation. Vessel deemed an increased risk for insurers with this issue.
- **Priority:** Items of repair should be carried out as soon as possible. Repair should be carried out no later than within six months. Vessel only insurable with restrictions or safety precautions.
- **Caution:** Items would require monitoring and further investigation. Repair may be required within the next twelve months.
- **Advisory:** Items are advised for safety or maintenance. These do not pose an insurance risk to the vessel.
- **Recommendations will be printed in blue, for quick reference. The recommendations are contained in the body of the report in order that they may be read in context.**
- *Suggestions will be printed in italics as they do not constitute a requirement. Suggestions are this surveyors opinion only and can be looked on as 'helpful advice' to preserve the craft for the long term or improve handling and comfort.*

Legislation & Ownership

Note: The inspection is not undertaken with any intention to ascertain that the vessel would comply with any rule or code of practice as may be required by any authority under whose jurisdiction the vessel may be operated. It carries no warranty regarding ownership of the vessel or any warranty regarding outstanding mortgages, charges or other debt there may be on the vessel.

V.A.T Status & Proof of Ownership

The original invoice for the vessel was not seen and therefore there was no evidence that EU V.A.T has been paid. There was no proof of ownership found on the vessel.

RCD (Recreational Craft Directive)

The HIN number indicated the vessel was built after July 1998 and therefore the vessel does have to adhere to the requirements of the Recreational Craft Directive. A builders plaque was seen attached to the cockpit of the vessel exhibiting a 'CE' mark. This is an indication that the watercraft conformed to the essential requirements and allows it to be sold anywhere in the EU. The vessels watercraft HIN number XX-XXXXXXXXX was seen embossed on the starboard aft transom of the vessels hull.

Surveying conditions

The conditions on the day the survey was conducted were good. The conditions when readings were take were as follows:

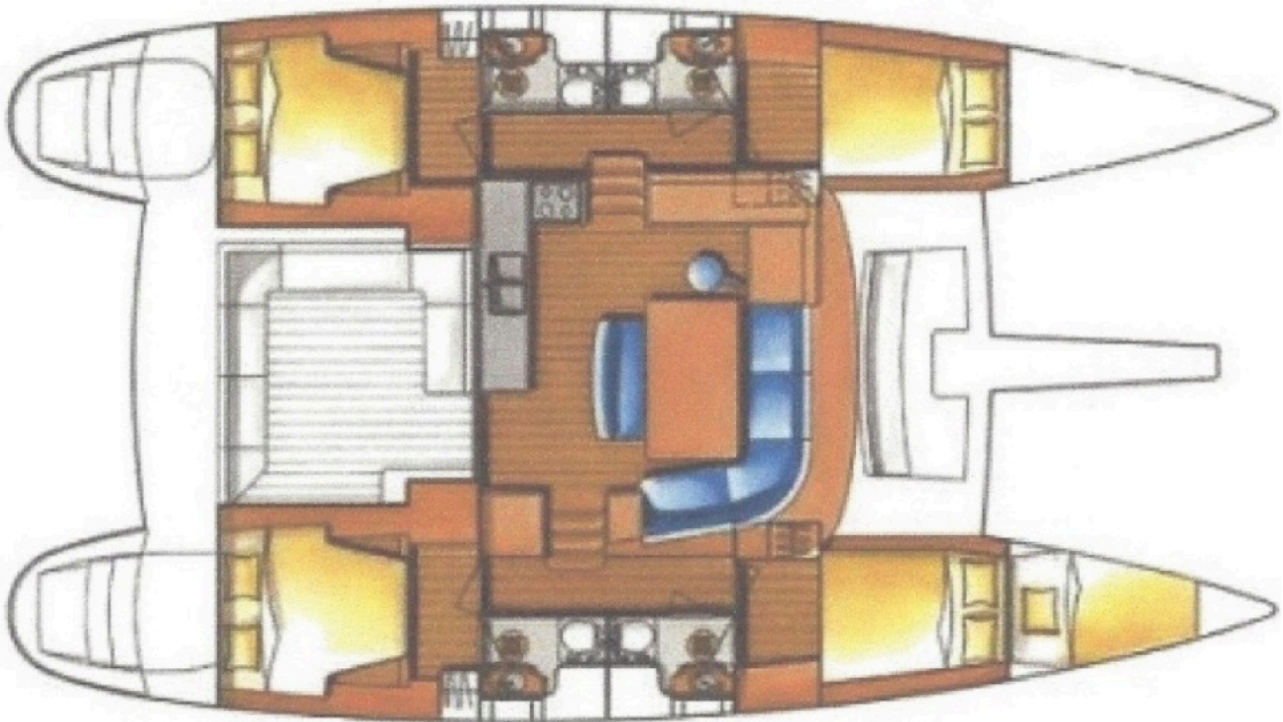
- Air Temperature: 16.7°C
- Surface Temperature: 15.6°C
- Humidity: 37.2%
- Dew Point: 13.8°C

The conditions were good for obtaining moisture readings within structural components of the vessel.

2. General Description

'—————' was reported as being built in 2009 by Lagoon Yachts. The vessel which was a highly successful production vessel of the cruising class was built in France. She was a modern, catamaran, cruising yacht. The vessel had a sloop rig with alloy mast and boom. The auxiliary engines were two Yanmar diesels with sail drives. The hulls were of moulded GRP finished in white gel coat with blue waterline stripes.

The general condition of this particular vessel indicates that she has been intensively sailed and is known to have been previously used for charter. She is of a known, tried and tested design. The original build quality was to a high standard. There are a considerable number of items which should be rectified as noted in the recommendations.



3. External Hulls Below the Waterline

As a catamaran, the vessel had two semi displacement V shaped hulls with short, shoal draft, unballasted keels. The hulls were moderately sharp forward and rounded further aft.

- The hulls were constructed of GRP laminate reinforced internally with bonded GRP and marine plywood bilge separators and bulkheads.
- The hulls were single layer GRP laminate below the waterline with longitudinal double layer skin cored sandwich above the waterline in places.
- The precise nature of the laminations was not determined, but inspection indicated the use of chopped strand mat and woven glass fibre cloth with (not confirmed: balsa core in places – the use of hard foam core is possible as well)
- The external hulls were examined visually, by hammer sounding and in selected sample locations and with the aid of a Sovereign Quantum marine moisture meter.
- The keels were fair, leading and trailing edges showed no indication of repairs or groundings.
- Hammer sounding returns were consistent and robust indicating no hollows or delamination in the laminate (expectedly, sounding returns varied between hull laminate backed by the internal stiffening and / or core and those areas which were not).
- Visual inspection revealed smooth hulls with no significant evidence of crazing or movement. No external crazing marks were seen.
- Hammer sounding and visual inspection did not reveal any areas of repair or filler.
- Below the waterline the original white gel coat was coated with black anti-fouling. The hull had not been jet washed after hauling, however, there was minimal marine growth.
- Anti-foul was observed adhering well and survivable for the current season.

- A number of small spots on the port side hull were noted where gelcoat had become removed and not filled with gelcoat or epoxy, prior to fresh anti-foul being applied.
- Moisture readings were taken in comparison with the topsides. (Note – the vessel had only been out of the water for 24 hours prior to readings being taken.)

Ranges tabulated below were all satisfactory. There was some limited amount of water dampness in the keel pump bilges, which potentially contributed to slightly elevated moisture readings in places.

(Note: The vessel had been covered in a number of layers of anti-fouling. Coupons of antifouling were removed to take moisture meter readings as part of the survey.)

Over 40 moisture meter readings were taken over the underbody of the vessel in places. Coupons of antifouling were removed so readings could be taken at the white gel coat. The table below shows the range of moisture readings taken.

Mode / Range ->	Range below W/L PS	Range Below W/L SS	Rudder & Keels
Shallow Mode	18 - 39	20 - 33	44 - 63
Deep Mode	14 - 28	16 - 28	65 - 80

Moisture levels across the underbody of the hull were considered to be medium-high, however, readings should be read in the context of the vessel having only come of the water 24hrs prior to survey and the vessel also having been in the water for many months prior to this. There were no visible signs of osmosis or wicking noted.

**For reference, readings of 0-17 are considered low, 18-25 are considered medium and at the top of this range to be approaching the point where the risk of moisture related defects developing becomes significant. Readings beyond 25 are considered high and at a level where the risk of moisture related defects is considerable, but not yet physically detectable. Readings above 30 indicate high levels of moisture within the GRP laminate and will usually accompany physically detectable defects.*

- Recommendation - Advisory: Filling small areas below the waterline with gelcoat or epoxy, prior to applying fresh anti-fouling.
- Recommendation - Advisory: It is generally considered good practise to have vessels out of the water and on the hard standing for a period of time annually to allow wetted surfaces to breath and dry.

4) Topsides Above the waterline

Externally, the topsides including undersides of the bridging superstructure, were finished in original white gel coat. From ground level accessible surfaces were visually inspected, lightly hammer sounded and sample moisture gauged.

- The gel coat was in a generally good visual condition with only a limited number of scratches or pieces of surface damage noted. These were primarily a number of cosmetic docking scratches which were not deep and a noticeable chip to the gelcoat on the Port bow.
- No hard spots, undulations, delamination nor any areas of any previous damage or repairs were detected.
- Both stems and sterns were closely inspected with no signs of significant impact damage seen. The stern rubber-like protective guards were noted to be split and damaged.
- [Recommendation - Advisory: Repair small scratches and nics to the gel coat.](#)
- [Recommendation - Advisory: The fender mouldings around the transoms should be replaced or bonded with a water resistant bonding glue.](#)

5) Deck Moulding

The deck was a GRP moulding integral with the bridging superstructure and the cockpit. Deck areas of cored sandwich construction on some horizontal areas to increase strength and insulation (core material could not be determined with out destructive testing).

- The side decks were hammer sounded and test loaded under the foot weight of the surveyor and found to be robust and in serviceable condition.
- The decks had an effective non-slip pattern.
- Moulding inspected, hammer sounded and weight loaded. No significant signs of crazing or delamination to the deck in general nor specifically at areas of stress such as around rigging attachment points or the fwd. crossbar (aka) attachment points.
- Moisture metering results were the same as topsides, which were satisfactory.
- [Recommendation - Advisory: There was a serviceable deck-trampoline securely fastened into the space between the bow cross bar and the hulls. On-going maintenance of trampolines will be necessary.](#)

6) Hull/Deck Join & Bridging Superstructure

The catamaran's two hulls were joined by a laminated GRP bridging superstructure encompassing the side decks, fore and aft bridge decks, coach roof and cockpit. There was an aluminium cross beam connecting the hulls at the bows.

- The perimeter hull to deck join and accessible connections between the hulls and the bridging superstructure were visually inspected, hammer sounded and sample moisture readings obtained where possible.
- The deck edge incorporates a raised teak toe-rail intersecting with the edge of the hull topsides, which has an inboard flange. Where seen via the forward cabins, lazarette and chain locker, the

join was secured with plexus type bonding paste and through bolted/screwed incorporating the toe rail.

- Gunwale was visually inspected and hammer sounded, found robust with the toe rail firmly attached.
- Hull deck join on the inside of the hull was not generally accessible for inspection due to linings. Where seen via the forward bow cabins and the engine compartments aft, the bonding paste and fastenings remained in place and the join was deemed to be in serviceable condition with no signs of leaking or splitting at this time.
- Considerable time was spent carefully looking at the area between the hulls and the underside of the bridge deck as well as around the aluminium cross beam (akas) at the bow. Excessive stress often shows up as stress cracks in the fibre glass of this connecting structure. None were seen on this vessel. Hammer sounding along the full length of the area indicated robust solid returns.
- The aluminium crossbeam and associated stiffening stays were visually inspected and hammer sounded where it attached to the hulls, no stress crazing was seen; and hammer soundings and moisture readings were normal.
- The transom is integral to the deck / cockpit moulding. Fastened to the stern counter with a plexus type bonding paste, which was trimmed by a rubber-like fender moulding. It was inspected externally and at arms length internally via the engine bays, and was found intact with no signs of movement.
- The rubber-like fender mouldings around the transoms were noted to be split and worn.
- **Recommendation - Advisory:** The fender mouldings around the transoms should be replaced or bonded with a water resistant bonding glue.

7) Coachroof

The GRP coachroof moulding was weight tested, hammer sounded and found to be firm. It had an effective non-slip pattern.

- Only a limited number of small surface blemishes on the non skid pattern were noted.
- There were 3 through bolts each side of the coach roof as part of the structural attachment, which were hammer tested and found secure.
- Moisture metering results were the same as on topsides – satisfactory.
- Using a straight edge, no deflections or undulations were detected to the coach roof including around the deck-stepped mast.

8) Cockpit

- The cockpit was integral with the GRP deck and bridge moulding and gives way to the main accommodation via sliding doors.
- Cockpit sole was firm underfoot and laid with teak.

- No signs of crazing or other damage, moisture readings on GRP surfaces satisfactory.
- Self draining cockpit channels, seen to be clear and in good order.
- The moulded part of the cockpit / deck structure was visually inspected and no evidence of movement, stress cracks or crazing seen.
- There were two integrated engine bays with hatches in the stern. These were tested under foot and noted to flex under the weight of the surveyor.
- Integral GRP cockpit lockers and lazarettes opened and closed smoothly, with latches, hinges and rubber seals intact.
- A large locker housing the generator and air conditioning unit was noted with latches, hinges and rubber seals intact.
- Three medium lockers for gas bottle storage, Eberspacher and spare parts were noted beneath the cockpit seating. The Starboard locker exhibited a significant crack along one edge of the base of the board. No other hair line cracks, crazing or movement were noted in this area when viewed from within the locker or from beneath.
- Additional deck storage in three large storage lockers on the foredeck (housing anchor windlass, spare anchor, fresh water tanks and bow lockers).

All locker and hatch covers in place with hinges working and seals not showing any signs of leakage.

9) Hull Interior and Structural Stiffening

The hulls were stiffened with sandwich construction above the waterline in sections. Numerous veneered plywood bulkheads and structures were glued to the hull with XPU bonding glue with GRP fillets and some limited cloth giving further stiffening. Movement was noted throughout the vessel between the hulls and structural stiffening members. This was most apparent on the Port side and in particular around the forward cabin and forward lockers.

- Significant cracks were noted in the veneer surrounding the Port forward cabin door. It was not possible to detect how far the plywood member behind the veneer had moved without further destructive testing.
- The forward cabin door was noted to not fully close, with the door rubbing on the cabin sole boards which is indicative of movement within a member.
- Significant movement was noted beneath the forward berth between the plywood members and the hull, where the XPU bonding had cracked in several places due to significant forces moving members against the hull.
- A number of areas beneath the Port forward berth were noted where XPU bonding had been painted over with white paint by previous owners, indicating this to be a known issue.
- Cracks were also noted in the XPU bonding fillet inside the forward locker.
- Accessible bilge surfaces seen in good order.
- Hammer sounding returns were consistent indicating no delamination present at the time.
- There was no marked difference with moisture readings taken externally on the hull – only a limited number of areas could be sampled due to liners, screwed down sole boards etc.

- Internally a GRP mast step compression structure was integrally fastened into the forward centre of the cabin matrix, accessible from the lockers was limited. The area around the compression structure was hammer tested and sounding returns were robust and where seen there was no crazing or movement around this area.
- **Recommendation - Urgent:** Further destructive testing should be carried out by a qualified shipwright around the forward cabin and heads. Areas covered by veneer should have the veneer removed and the members fully inspected for cracking or buckling. The XPU fillet bonding should be removed in all areas where cracking was noted.
- **Recommendation - Urgent:** Head lining noted to be failing in the Port forward heads should be removed and the deck to hull join checked for any signs of movement, damage and water ingress.

10) Rudders and Steering

The vessel had two balanced spade hung rudders, which had non magnetic stocks when tested with a magnet (it could potentially be GRP laminate though this can not be sure without destructive testing).

Comments here refer to both rudders unless otherwise stated.

- There were two rudder bearings, one at the through hull tube and one internally at the top of the GRP rudder stock tube, as seen at arms length from the engine compartment.
- Rudders were hammer sounded and found robust, returns were solid and consistent (hollow as expected – potentially filled with hard foam).
- Trailing and leading edges inspected - some minimal signs of filler noted.
- The starboard side rudder was noted to have some areas of delamination at the top of the rudder blade which had been repaired with an epoxy filler.
- The rudders were both moisture tested and the results returned elevated results. It is common for rudders to return significantly higher moisture readings in comparison to hulls.
- Only limited lateral or fore and aft movement was detected when weight tested.
- Teflon-type bearings (exact composition not determinable without further testing) seen with no rust corrosion stains around either the top or lower bearing (neither bearing was directly accessible for inspection).
- The steering was tested with the vessel on the hard and found functional and smooth. Rudder turned smoothly through full steering range.
- Port and Starboard steering mechanisms were attached by a tie rod, properly pinned at the articulation points.
- Cable steering was only accessible area above the engine compartments. Steering mechanism was fastened to the rudder stocks with secure bolt fastenings.
- Where accessible the cables were seen to be clean, free from any wear or fraying and greased where required.
- Integrated helm was elevated on the Portside of the flybridge.

- The leather covered steering wheel with brake seen to be firmly attached with no movement when weight tested. The leather covered steering was noted to be torn and the break did not lock off.
- Autopilot head unit installed at the helm with steering mechanism securely installed, seen to be serviceable on the hard.
- An emergency tiller was stowed in the Portside forward deck locker. This was tested on both the rudder stocks and found to be serviceable.

11) Stern Gear

There were two auxiliary engines, mounted one in each hull, each driving a sail drive with three bladed-fixed propellers. Comments below refer to both sets of stern gear unless otherwise stated:

Note: Sail drives had not been jet washed, however, only minor sea growth limited visual inspection.

- Propeller blades intact and true with no evidence of impact and minimal corrosion noted.
- Propeller shafts turned smoothly with no signs of binding when turned by hand out of gear.
- Both sail drive anodes were serviceable for the remainder of the season.
- Engine coolant water ports were clear of sea growth.
- Internal sea water coolant intakes clean with no verdigris or other evidence of dezincification.
- The Port side sail drive was noted to be very low on oil.

- **Recommendation - Priority:** External hull gaiters and internal hull seals were inspected and found in serviceable condition – note: the manufacture recommendation is for replacement of sail drive seals on a 5 yearly basis. Follow manufactures recommendation for replacement of sail drive seals.
- **Recommendation - Advisory:** As part of regular maintenance, clean propellers and sail drive legs. Inspect all components fully. Service as necessary including replacement of anodes. Replace internal sail drive seals if proved out of date.
- **Recommendation - Advisory:** Top up Port sail drive with correct oil as soon as practically possible.

12) Skin Fittings and Through Hull Apertures

The following below the water line through hull fittings were inspected. All through hull fittings and associated seacock valves were of a marine grade yellow metal (potentially bronze, but this can not be sure with out further testing). Those situated below the waterline were accessible in the bilges through sole board hatches. Those situated at the turn of the bilge on the waterline were only moderately accessible internally behind liners and other internal structures. Where accessible, the through hulls were lightly sounded internally and externally and hoses manipulated to check for movement, water ingress and or corrosion. Valves were checked for smooth operation and hoses and clips checked for security. Below waterline fittings had seacocks, which

were double jubilee clipped to appropriate marine grade hoses. Below and at the waterline through hulls are listed below:

Port hull moving aft:

- a. Fwd: 4.50M - Below waterline. Depth and speed transducers, secure with no signs of water ingress internally – blanking plug positioned in the bilge alongside.
- b. Mid: 5.90M - Below waterline. Deck wash inlet. 18mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- c. Mid: 6.00M - Below waterline. Forward toilet inlet. 23mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- d. Mid: 6.50M - Below waterline. Forward toilet outlet. 32mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- e. Aft: 8.00M - Below waterline. Aft toilet inlet. 23mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- f. Aft: 8.00M - Below waterline Holding tank outlet. 43mm plastic skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- g. Aft: 8.20M - Below waterline. Aft toilet outlet. 32mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- h. Aft: 8.40M - Below waterline. Shower outlet. 18mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- i. Aft: 12.15M - Above waterline. Bilge pump drain. 22mm plastic skin fitting, no ball valve or seacock. Double jubilee clipped.
- j. Aft: 12.15M - Above waterline. Exhaust. 72mm silver metal skin fitting, no ball valve or seacock. Double jubilee clipped.

Starboard hull moving aft:

- a. Mid: 6.00M - Below waterline. Forward toilet inlet. 23mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- b. Mid: 6.50M - Below waterline. Forward toilet outlet. 32mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- c. Aft: 8.00M - Below waterline. Air conditioning & Generator inlet. 18mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped. Verdigris noted around the fitting.
- d. Aft: 8.00M - Below waterline. Aft toilet inlet. 23mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- e. Aft: 8.00M - Below waterline. Sink foot pump inlet. 12mm metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- f. Aft: 8.20M - Below waterline. Aft toilet outlet. 32mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.
- g. Aft: 12.15M - Above waterline. Bilge pump drain. 22mm plastic skin fitting, no ball valve or seacock. Double jubilee clipped.

- h. Aft: 12.15M - Above waterline. Exhaust. 72mm silver metal skin fitting, no ball valve or seacock. Double jubilee clipped.
- i. Aft: 12.15M - Above waterline. Generator Exhaust. 50mm silver metal skin fitting, no ball valve or seacock. Double jubilee clipped.
- j. Aft 12.30M - Below waterline. Unidentified. 32mm yellow metal skin fitting, and ball valve seacock. Ball valve functioned when turned by hand. Double jubilee clipped.

There were numerous above waterline through hull fittings and apertures (including various breathers, sink and shower drains, bilge pump exits, lazarette and gas locker drains, anchor locker drains, cockpit drains etc.) positioned in the topsides and underside of the bridge deck at a distance above the waterline such that they did not have seacock valves. Many of these were behind liners limiting inspection. Where seen they were found to be properly installed, with good hoses, however, a number were only single jubilee clipped.

- Recommendation - Advisory: In an emergency, easy access for quick discovery and fast remediation is very important (e.g. closing the valve or plugging the aperture). Suggest creating a map detailing and labelling all through hull fittings and increasing access where necessary.
- Recommendation - Advisory: Going forward, inspect all through hull fittings in the course of routine maintenance with a view to replacement as necessary - ensure replacement with only high quality dezincification resistant (DZR), or composite plastic units, ensure double clipping of all below waterline hose / fitting joins.
- Recommendation - Advisory: Carry appropriate sized wooded plugs, preferably attached to the neck of the skin fitting by string in case of emergency.

13) Cathodic Protection

- There was an almost new external hull anode on the Port hull. This was bonded internally to certain items (bonding wiring was behind sole boards and linings), but there was no evidence that the through hull fittings were electrically bonded to this anode.
- The engines had internal zincs which need to be checked and replaced as a course of regular engine maintenance.
- The sail drives both legs had leg anodes and prop cone anodes, serviceable for the season.
- Recommendation - Advisory: replace all anodes annually in order to avoid destructive galvanic action to metal components and monitor in the course of regular maintenance.

14) Access to Accommodation

There were numerous ways of bodily access down below:

- Aft entrance from the cockpit with robust sliding doors and step-over water stopping ledges.
- Paired offshore profile, alloy framed Lewmar acrylic hatches on the side decks giving way to the sleeping cabins below as listed below.

- Paired offshore profile Lewmar, ~500mm x ~350mm, alloy framed, acrylic hatches over the bow cabins.
- Paired offshore profile Lewmar, ~500mm x ~500mm, alloy framed, acrylic hatches over forward cabins.
- Paired offshore profile Lewmar, ~500mm x ~350mm, alloy framed, acrylic hatches over the aft cabins.
- Paired offshore profile toughened glass ~450mm x ~450mm, alloy framed, acrylic escape hatches just above the water on the port and starboard hulls. Both noted with emergency hammers aside. No evidence of leaks was seen around. Both were inspected internally and externally.
- Door and door sliders were robust with intact seals and locking clasp, no signs of leaks seen.
- The acrylic in all hatches were in good order with only minor craze marks or signs of UV degradation, the seals found in good order, no signs of leaks below.
- A number of the hinges on the hatches were noted to be missing their central part.
- **Recommendation - Advisory:** Ensure all locking and security arrangements are robust and used when ever the vessel is vacated.
- **Recommendation - Advisory:** Regularly checking the bottom side hull escape hatches for signs of leaks or water ingress.
- **Recommendation - Advisory:** Neither the door nor the hatches were hose tested for water tightness. Perform hose test and replace seals as necessary.

15) Ports, Windows and Ventilation

Hatches, port-lights and windows were paired (note: hatches listed in section 14 were large enough for entry and exit, those listed below are smaller and primarily for ventilation). Each hull had the following configuration:

- Six ~300mm x ~300mm, alloy hinged acrylic hatches in the hull tops, one for each forward sleeping cabin and one each heads.
- Two ~300mm x ~150mm, alloy fixed portholes with acrylic in the topsides, one for each bow sleeping cabin.
- Four ~300mm x ~150mm, alloy hinged acrylic in the topsides, one for each of the forward and aft cabins.
- Four ~500mm x ~700mm, alloy fixed portholes with acrylic in the topsides, one for each of the forward and aft cabins.
- Two ~300mm x ~150mm, alloy hinged acrylic in the aft super structure between the flybridge and cockpit.
- Two ~300mm x ~300mm, alloy hinged acrylic hatches in the cabin top.
- Two ~400mm x ~400mm, powered coated hinged acrylic hatches set into the forward saloon windows.

Windows, hatches and port lights were visually inspected and hammer sounded around where appropriate (14 & 15). The following observations made:

- The acrylic was found in serviceable order, seals intact with no signs of leakage around.
- Hinges and clasps on all opening hatches were generally found to function properly. A number of the topside hatches were noted to be missing the central part of the hinges.
- Sun blinds were seen functioning properly.
- Powder coated frames noted to be blistering.
- [Recommendation - Advisory: Vigorous hose testing to check for any leaks and subsequent repair and fitting of new acrylic and seals as required.](#)
- [Recommendation - Advisory: Servicing hinges with missing parts.](#)

16) Stanchions

There were corner stainless steel two-rail push pits, and two stainless steel corner pulpits (not conventional pulpits as seen on mono-hull yachts). Stainless steel gates either side and at the transoms. Pulpit, pushpit and gates and stanchions all in 25mm stainless steel, with upper and lower 4mm guard wire in between.

- The stanchions and structures were visually inspected and weight tested and found to be robustly attached to the GRP gunwale.
- Bases of side deck stanchion posts were mostly clear of crazing, with only minor damage to gel coat noted around a number of the posts.
- 25mm stainless steel handrails on the coach roof, firmly attached.
- There were guard rail gates Port and Starboard and between the two halves of the push.
- Gates with removable guard wires inspected and functioning clasps.
- [Recommendation - Advisory: Routinely inspecting stanchion guard wires and ensure split pins are in place.](#)

17) Deck Gear and other Fittings

- There was no dodger noted onboard.
- The bimini cover for the steering position and cover console for the steering wheel and instruments were both in good serviceable condition.
- No cockpit enclosure was seen onboard.
- Stainless steel tubing and deck attachments were in good order.
- A hinged, stainless steel swimming / boarding ladder was securely fastened to the Starboard aft transom. This was not weight tested as a number screws were missing. Tubing noted to be significantly bent at the top.
- Cockpit table firmly attached to cockpit sole.

- There were substantial stainless steel davits securely fastened to the transom, no crazing or signs of stress around attachment points.
- [Recommendation - Advisory: Replacing the boarding ladder.](#)

18) Mooring Arrangements

- There was a ~20 kilo, galvanised CQR-type anchor stowed on the bow roller with securing device.
- Alloy anchor roller was not securely attached to forward crossbeam. The forward section of the anchor roller was noted to have sheered all the rivets and the stainless steel roller fastening noted to be significantly bent.
- Bow anchor attached to 12mm galvanised chain, with the chain pile noted in the chain locker. The full length was unknown, accessible links were seen to be serviceable.
- A Quick electric anchor windlass was not seen to function as the vessel was ashore and the engine not started. The anchor to chain shackle was tight but not ceased with wire. (reported by the client to be serviceable.)
- An additional plough-type anchor stowed in the starboard forward locker with additional warp and chain attached.
- There were paired, ~400mm, aluminium cleats at the bow, amidships, astern and transom. These were hammer tested and found secure, with only minor crazing to the gelcoat around the bases.
- Multiple mooring lines and fenders were noted.
- [Recommendation - Priority: The bow roller head should be removed from the vessel and replaced for new.](#)
- [Recommendation - Advisory: Laying the anchors and associated chain and warp out on the dock for full inspection, ensure shackles are wired shut and bitter ends properly secured to the hull so that in case of emergency the anchor and chain can be released from the vessel.](#)

19) Rigging Attachment Points

Three rigging attachment points were visually checked, hammer sounded and fittings tested by loading the shrouds and stays sideways under the weight of the surveyor and checking for movement. (Note: internal fixings were covered by linings and were not visually inspected).

- There were single shroud attachment points port and starboard in the form of stainless steel chain plates, through bolted to the hull gunwale topsides ~1m aft of amidships on each hull (~2.5m aft of the mast step).
- Examination above deck indicated the chain plate arrangement to be well made and secure.
- Portside there was no deformation and no crazing of the GRP around the immediate area where the chain plates entered the topsides, nor any deformation or indication of stress on the

topsides and decks at a wider radius. There was, however, crazing noted just forward of the chain plate attachment. This was not deemed significant at this time, however, this should be closely monitored going forward.

- Starboard side there was no deformation and no crazing of the GRP around the immediate area where the chain plates entered the topsides, nor any deformation or indication of significant stress on the topsides and decks at a wider radius.
- The forestay was secured with a chain plate tang through bolted to the forward aluminium crossbeam. This was visually inspected and hammer tested and found to be secure.
- Recommendation - Caution: There were some limited gel coat craze marks of ~120mm in length on the deck surface beyond the immediate radius of the Port side attachment point (pointed out to the prospective purchaser). Hammer testing the specific area returned robust soundings equal to those from unaffected areas at a wider radius on both Port side and Starboard side, moisture testing showed no differences either. This area should be closely monitored going forward.

20) Mast and Spars

The mast and boom were aluminium alloy extrusions. The mast rigged in a sloop fashion was deck stepped with 7/8ths length forestay and shrouds.

The mast had double swept spreaders, with triangular stiffening stays. The spars, boom and standing rigging were visually inspected from deck level and also aloft as part of a rig inspection only, and not seen under-load as part of a sea trial.

- The deck mounted, alloy mast step was firmly through bolted to the cabin top, hammer tested with no evidence of movement seen (headliner covered internally).
- There was no crazing or compression indentation seen to the GRP deck around the step, hammer soundings robust and consistent. Internally there was no indication of movement or stress around the accessible GRP structures noted.
- Sighting up the mast it was seen to be in column with ~200mm of pre-bend.
- Air-foil shaped spreaders attached to the mast with fittings visibly inspected aloft. No undue movement was noted when the rigging was loaded from side to side under the weight of the surveyor.
- Attachment points aloft were visibly inspected and no movement noted.
- The aluminium gooseneck was secure on the mast and boom when swung tested from side to side.
- The gooseneck hinge bolt with tack deadeye was secure. Mast mounted cleats were firmly attached.
- The boom was straight and in good order, with outhaul rigged for loose footed mainsail and slab reefing for two reef points

21) Standing Rigging

The vessel had a single forestay and forward and aft upper shrouds which attached to the mast at 7/8ths height and two sets of sweptback spreaders. Stainless steel shrouds and stays were inspected from deck level and aloft.

- Accessible standing rigging was seen to be in appropriate diameter Stainless steel wire and connected by swaged fittings to bottle screws. 10mm and 12mm forward and aft upper shrouds were covered with pvc tubes limiting examination.
- All fittings lay in a straight line up to their mast terminals with no bending or distortion and were able to articulate smoothly where seen.
- Toggles were seen at both ends of the shroud bottle screws, at the tops between the screws and the swaged shrouds and at the chain plates.
- The upper and lower swages were inspected with some limited surface tarnishing noted around the base of the wire and top of the swage where the wire inserts.
- General visual inspection from deck and aloft indicated shrouds to be of serviceable condition for coastal cruising in normal conditions (Note: some insurers will not cover standing rigging older than a certain age (normally 7 to 10 years) and put the onus on the owner to prove age. No documentation was seen to verify standing rigging age, it is likely to be original).
- The condition of the forestay could not be fully inspected as it was covered by the roller reefing foil.
- Facnor SD 290 Genoa furler properly installed, forestay toggled and pinned to its chain plate.
- The bow aka-crossbeam incorporated a triangular alloy stiffening member stayed to the ends of the beam. The fixing points were inspected and hammer sounded and found secure.
- [Recommendation - Advisory: Regularly check all rigging clevis pins and bottle screws to ensure they are securely pinned.](#)
- [Recommendation - Advisory: Genoa furler should be unfurled and furled during sea-trial.](#)
[Recommendation - Advisory: Replacing the standing rigging if it is found to be older than the 7-10 year age range specified by insurers.](#)

22) Running rigging

Running rigging was examined visually and fittings were tested manually to the extent possible with the vessel having not been taken on a test sail. No running rigging was tested under load and a visual inspection is by no means a full indication of functionality.

- Sheets and Halyards were mostly 10mm and 12mm braided polyester. Modern line material, all only very slightly worn and deemed serviceable for coastal sailing.
- Main and jib halyards and sail control lines (e.g. mainsail out-hall and reefing lines, mainsail sheet, jib sheets etc.) lead back through turning blocks securely fixed at the mast step and then through deck organisers to clutches and cleats by the helm station, found firmly in place.
- Two Harken 46 & 53 electric, two speed, self tailing winches mounted on cabin top by the helm, and flybridge coving, with foot control switches – functioned properly. (not tested as part of a sea trial)

- One Harken 40, two speed, self tailing winch mounted on flybridge coving for the traveller main – functioned properly. (not tested as part of a sea trial)
- One Harken 40 electric, two speed, self tailing winch mounted on the aft cockpit coving for the main sheet, with control switches – functioned properly. (not tested as part of a sea trial)
- Two Additional Harken 60, manual, two speed, self tailing for Genoa sheets.
- Jib furler line, blocks and cleat seen to function. (not tested as part of a sea trial)
- The end boom rigged mainsheet had a multiple part tackle run to an adjustable traveller attached at the aft flybridge cover was hammer tested and found secure (not tested as part of sea trial).
- Alloy genoa / jib tracks with adjustable cars, securely fastened to the cabin top, hammer sounded and inspected. Significant wear to the jib track rollers noted. No signs of stress or movement noted. (note – headliners limited inspection of fittings below decks).
- Three winch handles seen aboard.

- Recommendation - Advisory: The genoa was bent on at the time of the survey and the halyard could not be examined.
- Recommendation - Advisory: Check the state of all halyards where they pass over turning blocks and mast sheaves.
- Recommendation - Advisory: Service all winches in the course of regular maintenance.

23) Sails and Covers

A suit of sails was bent on at the time of the survey: a main and a genoa. No other sails were seen.

- The main was only partially inspected resting within the sail bag. No comment can be made on the condition or serviceability of the main sail.
- The genoa were seen furled with protective strip covering the sail from inspection. No comment can be made on the condition or serviceability of the main sail.
- Reefing points, tack and clew cringles and the head board on the mast all checked and found in good order.
- The main was stowed in a lazy jack ‘stack pack’ boom cover in good condition.

- Recommendation - Advisory: Seeing all sails set as part of a sea trial and seeing the age, condition and serviceability of the sails.
- Recommendation - Advisory: With proper and regular servicing, modern sails can have a considerable life span.
- Recommendation - Advisory: Professionally service the sails at the beginning of the season and prior to any long passage.

24) Engine(s) Installation & Sail drives

The vessel had two auxiliary engines, one mounted in each hull. They were Yanmar 4JH4AE 54hp, naturally aspirated diesels, driving SD50 sail drives with three bladed propellers. The engines were inspected visually only and were not seen running as part of a sea trial.

- Comments in the sections below are for both engines unless otherwise stated:

- Engine hours as showed on the LED readout. Port: 1563.8 / Starboard: 1146.3
- Engines installed with reasonable access around. Installation to a high, professional standard in clean, sound proofed, engine bays.
- External engine surfaces were clean with Yanmar silver paint coatings intact and metal engine build / number plaque firmly in place (serial #s: Port E08948, Starboard #s: E09126)
- Engines flexibly mounted, fastened to the GRP bearers integral to the moulding. All mounts were inspected and the port side engine mount noted to be cracked. All other mounts were found to be serviceable.
- Exhaust injection bends sound externally with no evidence of leaks.
- No significant signs of oil leaks were seen beneath the engines sumps and bilges were found to be clean, though a small amount of transmission oil seen by the Starboard sail drive. (likely a mess from previous service though this cannot be proven without testing).
- Engine oil was up to level but with a dirty 'unserviced' colour, rather than new honey brown clear colour.
- Sea water filters with clear tops, inspected, no debris seen, no signs of leakage.
- The water pump and alternator belts checked – tension appropriate.
- The coolant in the heat exchanger reservoirs was up to level.
- Flexible exhaust systems ran from the joiner elbow to a nylon lift box and from there it was looped up to the Port and Starboard side mounted outlets, appropriate exhaust hose used and all double clipped.
- Both sail drive head/gear boxes were visually inspected and found in good order.
- Port side sail drive oil noted to be low and at the lower dipstick marking.
- Nuts holding the metal rings around the rubber internal hull gasket seals were lightly hammer tested and found tight. Where seen the rubber hull seals showed no excessive wear, abrasion, stiffness or cracking. (Note – manufacturers recommendation is for sail drive seals to be replaced every five years. It is also key that the rubber seals that keep oil in and water out of the transmission do not get breached.)
- **Recommendation - Priority:** Port engine mount be replace as soon as practically possible and before extended navigation.
- **Recommendation Advisory:** Obtain previous service records and dates as to condition of purchase; follow manufacturer's recommended service schedule for engines and sail drives

(cleaning the water intake grates, replacement of external and internal anodes, changing sail drive seals and gaskets and transmission oil as necessary).

- Recommendation - Advisory: Periodically checking transmission oil for any water leaks.
- Recommendation - Advisory: Service sail drives every year including locating and testing potential water ingress alarm (not seen during survey).
- Recommendation - Caution: Top up Port sail drive with oil up to upper level.

25) Engine Controls & Running Checks

Ignition, controls and indicators were installed on a control boards by the helm on the flybridge, including ignition and stop controls, tachometers, and alarms.

- Dual engine, morse-type gear shift and throttle actuator moved smoothly when tested.
- No engine sea trial was carried out where the engine controls and running checks were seen whilst the vessel was under way.
- Recommendation - Advisory: Seeing the ignition, controls and indicators to be serviceable as part of a sea trial.

26) Fuel System

- Two large PVC-type fuel tanks were securely fastened under the Port and Starboard aft berths. Only the tops of the tanks were accessible for inspection.
- No signs of corrosion to hose attachments seen.
- Fuel line delivery cut off valves in place and accessible.
- Fuel cut off leavers actuated and serviceable.
- The fuel lines travelled through pre filters prior to the filters mounted on the engines.
- All piping was appropriately marked as fuel hose, well clipped and in good condition.
- The diesel heater fuel lines were both noted to have been sealed with a silicone type sealant, indicating possible previous leakage.
- There were two fuel tank gauges by the helm seen to function with both tanks half full at the time of survey.
- Recommendation - Advisory: Old, stale fuel can be dirty and infested by diesel bug, which can cause damage to engines and also cause them to stop.
- Recommendation - Advisory: Empty and clean fuel tanks prior to extended passage.

27) Electrical Installation

The electrical installation was found to have been done to the high standard of a reputable boat builder.

DC:

- Four 135-amp hour 12 volt DC, Exide marine batteries neatly installed beneath the Port aft berth. These were not securely strapped down in their purpose built battery compartment. Batteries were tested with a multi meter and 13.90v noted. (No comment can be made on the serviceability or age of the batteries as their service history is unknown.)
- Two 12 volt, engine starting batteries was secured in plastic boxes, under Portside aft cabin sole. Batteries were tested with a multi meter and 14.18v & 13.96v noted.
- One 12 volt generator starting battery was secured in a plastic box in the forward cockpit deck locker. Battery was tested with a multi meter and 13.67v noted.
- Battery connecting leads of proper quality and appropriate gauge wire.
- 12 volt isolation switches for house and start batteries along with breaker switch's for the windlass and electric winch situated beneath the port and starboard aft berths and serviceable.
- Battery charging via: 1) Quick SBC 12 volt AC/DC charger installed under the Port side lazarette above the engine. 2) two engine mounted 12 volt alternators.
- AC/DC battery charger seen to function as the vessel was plugged into shore power.
- House batteries held a good charge during the mooring based survey.
- Electrical fuse, connection board and breakers installed behind the joint, AC and DC distribution panel by Port side companion way in good order and of a quality professional installation specification.
- **Recommendation - Advisory:** Fasten all batteries with webbed strapping prior to extended navigation.

AC:

An appropriate three prong, 16 amp 230 volt shore power plug was situated on the Port side stern steps along with a 230v RCD switch directly downstream in the engine compartment.

- 12 volt 'cigarette lighter' plugs were situated at the nav station and at various other locations on the vessel. These were sample tested and were serviceable.
- 230 volt plugs situated in each of the sleeping cabins and the saloon. These were sample tested and were serviceable.
- **Recommendation - Priority:** There was a large diesel 230 volt generator positioned in the forward cockpit deck locker. This was not seen in service as the vessel was out of the water. This should be run as part of an in water trial and seen to produce power to the AC electric system.

28) Navigation Lights, Electronic and Navigation Equipment

The following equipment was switch tested (note: switch testing is not a test of operational functionality):

Navigation Lights:

- The port and starboard bow lights worked.
- The steaming light worked.
- The stern light worked.
- The mast mounted anchor light worked.

Electronic and Navigation Equipment

- All spot lights tested. 12 volt cabin and cockpit lights worked, except one small reading lamp.
- All fans tested and worked.
- FM stereo radio/CD with saloon and cockpit speakers worked.
- T.V. tested and seen to switch on.
- Raymarine E120 chart plotter within the saloon seen to switch on, however, screen appears to be broken. No charts seen, did not work.
- Raymarine E120 chart plotter at the helm seen to switch on with charts seen and seen to work using various navigational functions – however this was not a full check.
- Raymarine Autohelm control head mounted by the helm seen to work. (Not fully tested as part of a sea trial)
- Helm station radar not seen to function. No 'Data' reading seen. Mast mounted Radar scanner seen from deck level.
- 1 Raymarine ST 70 display in saloon : Autohelm, Wind and Tridata – seen to turn on.
- 2 Raymarine ST 70 display at the helm : Autohelm, Wind and Tridata – Port - not seen to turn on. Starboard - side seen to turn on.
- Recommendation - Priority: Saloon mounted Raymarine chart plotter should be serviced or replaced.
- Recommendation - Priority: Portside Raymarine ST70 display be repaired or replaced.
- Recommendation Priority: Raymarine VHF radio with DSC distress by the nav table. No external helm extension noted. Saloon VHF heard to work – listed MMSI number XXX XXX XXX XXX; call sign XXX XXX (need to be used when re-registering the boat and obtaining a new EPIRB and Radio Licence).
- Recommendation - Advisory: Verify if GPS position is being fed to the radio, regularly verify – if not the distress function will not operate properly.

29) Bilge Pumping Arrangements

Six bilge pumps in total: two manual, two semi automatic, two automatic. The pumps were installed in each of the keel sumps readily accessible under the sole boards. The two fully manual ones were located in the cockpit seating.

- The engine bays and bow lazarettes were drained by hoses leading to the Port side and Starboard side keel bilges. These hoses each had ball valves enabling them to be opened or closed when required. Hoses and valves properly installed.

- Electric pumps had automatic float switches as well as manual control switch at the chart table.
- 2 x Manual bilge pumps mounted on the aft end of the cockpit
- Port and Starboard automatic pumps were not heard to function. The semi automatic pumps were heard to function when tested although, while the sump was damp there was not enough water in the bilge to witness the full functioning of either.
- Port and Starboard manual pumps were not heard to function.
- **Recommendation - Priority: Prove all bilge pumps on manual and semi automatic and automatic are serviceable prior to leaving harbour.**

30) Fire-fighting Equipment

- One 6kg ABC powder fire extinguisher was noted in the saloon beneath the chart table. The green sector was noted, expiry date 4/2019. Not securely attached.
- One 1kg ABC powder fire extinguisher was noted in the saloon. The green sector was noted, expiry date 4/2020. Not securely attached.
- No smoke or carbon monoxide alarms were seen onboard the vessel at the time of survey.
- No fire blanket was seen onboard the vessel at the time of survey.
- **Recommendation - Priority: Update fire extinguishers for cabins, saloon and engine compartment and ensuring they are all securely attached.**
- **Recommendation - Priority: Install smoke, carbon monoxide and gas alarms.**
- **Recommendation - Priority: Install a fire blanket at the galley.**

31) Lifesaving, Emergency and other Equipment

- No horseshoe throwing device and line were seen.
- No man overboard throwing sling was seen.
- A floating throw line was attached to Port aft rail.
- A first aid kit was seen.
- A fog horn was seen.
- No safety tethers were seen.
- A number of out of date loose flares were seen aboard.
- A number of old style life jackets were stowed beneath the saloon seating and were visually serviceable.
- No EPIRB was seen.
- An Arimar life raft was noted securely affixed within its slot beneath the cockpit. Neither the original manufacture date nor next service date label could be seen.
- An emergency tiller was noted within the forward locker. This was assembled and tested on both rudder stocks and found to be serviceable.

- Recommendation - Advisory: Procuring a 'grab bag' and ensuring this is prepared at all times with all items necessary in case of emergency.
- Recommendation - Priority: Update flare pack.
- Recommendation - Advisory: Provide John buoy throwing device.
- Recommendation - Advisory: Replace or service the lift raft.
- Recommendation: Advisory: Verify life raft next inspection date and service as necessary.
- Recommendation: Determine which of this equipment 'comes with the boat'. Reference the appropriate national marine authority and comply with safety equipment requirements as advised (e.g. for UK vessels - see:) http://www.rnli.org.uk/what_we_do/sea_and_beach_safety/sea_safety/sea_check <http://www.rya.org.uk/infoadvice/safetyinfo/Pages/default.aspx>

32) General Accommodation & Systems

- The vessel was laid out with: 4 double berth sleeping cabins; 2 heads in the Port side hull and 2 in the starboard hull; 2 single berth sleeping cabins; 1 in each of the forward hulls. A large open saloon in the bridge incorporating settee, dining table, galley, and navigation table.
- The original outfitting was to a very high standard and was found to be in very good condition (not new) at the time of the survey with minor blemishes and scratches to the veneer and sole boards discoloured in a number of places.
- Bulkheads, doors and other structures all finished in quality wood and veneered panels with well-maintained, natural coloured, coatings.
- Doors, drawers and lockers all mostly opened smoothly with the majority of latches, handles and catches in working order. A number of small catches were noted to be missing. The door to the forward port side cabin was noted to close with difficulty with cracks to the frame noted.
- Surfaces had been generally well maintained with very few marks, bumps or scratches noted.
- Curtains and soft furnishings upholstered in quality fabrics and in serviceable order with little evidence of wear.
- The headliners and topside liners were in good condition, except for the forward Port side heads where evidence of leakage and condensation to the liners was noted with liners also noted to be coming away.
- Faux, veneer-like sole boards were mostly unblemished, even in high traffic areas, however a number of white spots were noted to the saloon floors.
- Recommendation - Urgent: The difficulty in closing the Port forward cabin door and the notable cracks around the cabin door frame indicates significant movement to the extent to which cannot be fully evaluated without further destructive testing. Recommend further destructive testing be carried out, which would involve removing veneered linings so that further inspection maybe carried out to assess the extent of the movement.

33) Gas Installation

The gas installation was inspected visually only. The visual examination does not constitute any kind of gas safety certificate, which is only obtainable in many jurisdictions after comprehensive pressure testing and assessment by a qualified gas engineer (e.g. in the UK by a registered by Gas Safe engineer www.gassaferegister.co.uk).

- Gas bottle storage was in a dedicated, self-draining locker beneath the cockpit seating. The hinged locker hatch had a tight top with closing latch and drained overboard.
- No gas cylinders were seen onboard. A regulator was seen clean of corrosion attached to a rubber hose.
- The regulator was attached to a copper gas line via a gas grade hose, properly clipped and in date.
- The copper delivery pipe was not visible for inspection behind linings.
- There was T and double line stopcocks in the galley.
- Down stream a gas cooker/oven was connected to the gas lines by an in date, orange gas hose.

- Recommendation - Advisory: No gas bottle securing straps were in place in the locker. The gas bottles should be secured within the lockers with strapping.
- Recommendation - Advisory: It was not clear why there were two delivery hoses in the galley as the cooker should only require one and there was no other obvious gas service installed.
- Recommendation Advisory: Discover the reason for the gas line T in the galley. Eliminate or properly cap any un-required gas line.
- Recommendation - Advisory: No fire blanket present - Provide
- Recommendation - Priority: No gas, smoke or carbon monoxide alarms installed. Advise installation of gas, smoke and carbon monoxide alarms.
- Recommendation - Advisory: Have the gas system inspected by a specialist gas engineer (note in certain jurisdictions gas hoses require updating every 5 years).

34) Fresh Water System

There were three 300L blue plastic PVC-type fresh water tanks securely installed in the foredeck locker. The front facing surfaces of the tanks was accessible for inspection.

- The fresh water pressure pump, plumbing manifold and accumulator tank were accessible within the forward facing locker.
- The water pressure pump seen to work. No leaks were seen around pipe work where accessible.
- Taps in galley and heads delivered both hot and cold-water (hot from shore power and engine hot water circuit)
- Hot water calorifier was seen in the space under the Starboard aft bunk, powered by AC shore power and an engine coolant circuit. A small leak was noted beneath the fittings.

- A deck shower head installed by the Port aft steps.

Note: Water tasted slightly stale, but only to the extent that the tanks needs rinsing not sterilising.

35) Heads

The four heads compartments were found, two port, two starboard, forward and aft.

- Port side heads forward and aft incorporated two a standard Jabsco electric sea toilets, sink and shower.

- Toilets both seen to be serviceable and flush with macerators heard to be serviceable.
- Sinks and showers drained into the sump within the shower. Whale gulper pumps were heard and seen to expel water from the sump. Aft gulper pump note not adequately secure to the hull.
- Starboard side heads forward and aft incorporated standard Jabsco electric sea toilets, sink and shower.
- Forward toilet not seen to be serviceable with the macerator pump seen disconnected in the toilet. Aft toilet seen to be serviceable and flush with macerator head to be serviceable.
- Sinks and showers drained into the sump within the shower. Whale gulper pumps heard and seen to expel water from the sump. Forward gulper pump not attached to the hull. Aft gulper pump very loose.
- Port side toilets attached to a large holding tank housed in the forward port heads, with diverter valve.
- The plumbing hoses were sanitary odour resistant type, and attached with double clamps. Highly likely that these were original hoses which need to be replaced, as they are likely to be clogged with calcium deposits internally.
- Port aft toilet was noted to smell when pumped.

- **Recommendation - Advisory:** Starboard side forward heads to be seen to be serviceable once macerator pump repaired/replaced.
- **Recommendation - Advisory:** All the loose and not affixed shower sump pumps should be securely affixed to the hull.
- **Recommendation - Advisory:** Replace all old sanitary hoses, some of which smell.

36) Heating & Refrigeration

- Two 12 volt, refrigeration units installed in the galley. These were heard and felt to work and cooled down rapidly, when turned on (switch on main DC panel).
- A Sinclair air conditioning unit was noted securely installed beneath the cockpit seating. This was not seen to be serviceable at the time of survey as the vessel was out of the water.
- An Eberspacher diesel heater was noted securely installed beneath the cockpit seating. This was not seen to be serviceable at the time of survey.
- **Recommendation - Advisory:** The Sinclair air conditioning unit should be serviced and seen to be serviceable.

- Recommendation - Advisory: The Enderspacher diesel heater should be serviced and seen as to be serviceable.
- Recommendation - Priority: Install carbon monoxide and fire alarms in all accommodation cabins.

37) Dingy and Other Equipment

- Substantial stainless steel davits securely bolted to the stern.
- A semi inflated Selva soft bottom dingy seen and was visually serviceable.
- No outboard was noted onboard at the time of survey.
- Recommendation - Advisory: Ensure the dingy is serviceable when full inflated.
- Recommendation - Advisory: Ensure the and future outboard engine are locked to the vessel when ashore.

38) Conclusions

A pre purchase condition survey was carried out on '— — — — —' while she was in the water and on the hard at Tribunj Marina, Vodice, Croatia. And a rig inspection was carried out along side the survey. The vessel, built 2009, was of the Lagoon 440 design, which was a successful, catamaran cruiser class built in France. This particular vessel had been in charter and showed signs that she had been intensively sailed. She is of a known tried and tested design and has been maintained to a reasonably high standard, overall presenting well with the build quality being of that of a professional yacht builder. However, the findings of the survey raise concerns in a number of areas. The cracking and movement seen within the Portside cabin and forward locker is of significant concern and will require further investigation by a professional shipwright which will involve destructive testing to establish how extensive some the cracking and movement is prior to a potential course of remedial action being taken. Exhibiting as she does with this current condition sailing should be limited to coastal sailing only. Additional items which require immediate attention and carry more significant cost are; The bow roller stainless steel attachment; Replacement of the Port side engine mount; Confirmation of age of the sail drive seals, and their potential replacement; Replacement of the Chart plotter at the navigation station; The heating & cooling systems being seen to be serviceable; There are also a considerable number of safety items, which should be attended to and some systems requiring close monitoring and precautionary remediation. Quotes for all works should be obtained and considered carefully prior to purchase.

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27/11/2019

I. Addendum- Photographs

