Pre-purchase Survey on 2009 Allures 44 - ‘ ’ - June 2023 EXAMPLE

Full range of surveys and project management on GRP/FRP, steel, aluminium and wooden vessels

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Compass Marine Yacht Surveys

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General Notes

The survey inspection was carried out afloat and ashore on 12th, 13th and 14th June 2023 at Richardson's Yard, Island Harbour Marina Isle of Wight for [redacted] (the Client) by the surveyor, Andrew Edmond, Compass Marine Yacht Surveys **(www.compassmarinesurveys.com)** (jointly, 'the parties').

Recommendations and suggestions defined:

Recommendation (Level A) - Items that should be addressed before vessel is used or the item is relied upon (unless a time frame is specified) and, or, which may affect insurability. They relate to defects that have failed or with a high risk of failure and moderate to serious consequences for the safety of the crew and the vessel.

Recommendation (Level B) – These require attention in the near future or a given time span but not immediately. They pose less imminent risk at the time of inspection but are likely to cause problems in future, when they could result in moderate to serious consequences for the safety of the crew and, or, vessel.

Suggestions may also be made regarding items that may lead to impaired safety or value in the future. Some suggestions may only have consequences for appearance or comfort of crew. These can affect value.

Where recommendations or suggestions have been made, quotations for the work should be obtained from a competent professional and any significant work checked by a competent and independent person once carried out. Whether or not a recommendation or suggestion is made or at what level, there is no guarantee that an aspect or component will not fail unexpectedly.

Conditions of Survey

The vessel was examined ashore (including with the keel lowered and no weight on it).

The mast was stepped so mast and rigging could only be inspected from deck level. Any defects found above that level were seen using a high definition x20 optical zoom camera. This is very limited does not allow full examination aloft.

When ashore, the vessel was seen washed down above and below the waterline. The survey included a visual inspection of the engine and installation when stationery and running but not under load.

The client did not require a valuation.

Before the inspection ashore began, the hull around the supports was examined for evidence of distortion and adequate, secure support. No issues were seen. The vessel was not boarded while ashore as she was not set down.

During the survey inspection, the weather was fair. No other special conditions affected the survey other than as mentioned in the text.

Please see Section K and the contract between client and surveyor for more information on the scope of the survey

Summary of recommendations

This was a relatively recent production aluminium yacht, with moderate signs of wear, modest equipment levels in need of a number of repairs and replacements, most minor, and some relatively major.

Three deep pits ion the hull plating at the water-tank are in need of repair and the whole tank should be inspected internally. This will require a significant amount of work. Some areas of corrosion on the hull plating needed the epoxy coating replaced.

Removing the keel at this stage is recommended but this is not urgent. The rudders however were splitting and wherein need of urgent repair.

Minor work was required on the deck and the rig, assuming the chain plates are confirmed as secure when paint and corrosion is removed on the deck.

The sail drive diaphragm was in need of replacing and the propeller needed a costly service. Other minor work was needed to the engine and stern gear.

Various minor safety items or repairs were needed. The outboard na dinghy were not seen.

Work was needed to the gas system and cooker. The bow thruster/windlass battery was in need of replacement. Various other minor works and additions were needed to the accommodation.

Not all faults or significant faults may have been mentioned in this summary and the full report must be read to obtain an accurate account of the vessels' condition.

Hull plating

Recommendation (Level A) - Repair the three deep pits in the hull plating described in A.1.d.

Recommendation (Level B) - Replace the epoxy coating on the hull below the waterline where there is corrosion below the transom, either side of the skeg/keel casing and on a strip aft of the skeg across the hull.

Through-hull fittings

Recommendation (Level A) – Within two months, replace the engine inlet valve with DZR brass, bronze or glass reinforced 'nylon' (eg Sofomarine, TruDesign or Forespar Marelon ball valves).

Recommendation (Level A) – Before re-launch, replace the engine inlet hose and free up or replace the aft WC outlet to sea and any other stiff or seized through-hull valves.

Recommendation (Level A) – Ensure double clips are fitted on all bilge pump hose connections.

Recommendation (Level B) - Fit wooden bungs adjacent to all through hull fittings with a lanyard to ensure they remain ready in position.

Ballast Keel

Recommendation (Level B) – Remove the keel to allow inspection of the electrical isolation between the lead and aluminium components, the pivot pins, the friction pads, the pennants and their blocks and fastenings.

Rudder and steering

Recommendation (Level A) – Drop the rudders to allow inspection of the stocks and tangs and to laminate these to one or both sides of each blade and rebuild, sheathing the blades with glass and epoxy to seal them.

Recommendation (Level A) – Regularly check the tolerance of the rod-ends on the steering rods and replace when necessary.

Recommendation (Level A) – Fit a longer hose to the port cockpit drain to avoid fouling on one of the tiller arms.

Deck, Cockpit Hatches, Portlights Guardrails and Jackstays

Recommendation (level A) - Replace the two upper guard wires with un-sheathed 4mm stainless steel wire.

Recommendation (level B) - Replace the C rings securing the guard wires with a more secure means.

Recommendation (level B) - Fit jack stays.

Rig

Recommendation (Level A) - Clear paint and corrosion from around the starboard chain plates externally, inspect and repair as appropriate.

Recommendation (Level B) – Replace the clips through the clevis pins at the top and base of the vang with split pins.

Recommendation (Level B) – Replace the starboard mainsheet tuning block on the coachroof.

Recommendation (Level B) – Repair stress cracks at jib preventer to prevent water ingress.

Engine fuel system, stern gear and cathodic protection

Recommendation (Level A) - When the boat is re-launched, check the oil level and, if necessary, remove some of the lubricating oil from the engine to bring the level down to 'full'.

Recommendation (Level A) - Check the anti-siphon loop vent on the raw water outlet and release the cable tie around the water hose from the vent tube.

Recommendation (Level A) - Check the port side of the cylinder head for core plug corrosion under the paint and replace or re-coat.

Recommendation (Level A) - Replace the C clip on the gear control cable at the reduction box with a split pin.

Recommendation (Level A) - Double clips should be used on all raw water and exhaust hose connections.

Recommendation (Level A) - Replace the sail drive diaphragm.

Recommendation (Level A) - Service propeller.

Recommendation (Level A) – Replace the anode on the propeller.

Safety and other Equipment

Recommendation (Level A) - Remove the shackle on the bitter and of the anchor chain and tie this off with a lanyard that can be cut quickly in an emergency.

Recommendation (Level A) - Test both bilge pumps with water in the bilge including the automatic function on the electric pump.

Recommendation (Level A) - Fit double clips to all bilge pump hose connections.

Recommendation (Level A) - Fit double clips to all bilge pump hose connections.

Recommendation (Level A) – Fit three new fire extinguishers in the aft cabin, main cabin and forepeak with a combined rating of 21A/144B.

Recommendation (Level A) – Fit a smoke alarm and an in-date automatic clean agent extinguisher in the engine compartment.

Recommendation (Level A) – Fit a rigid dan buoy with a light. Carry in-date flares, lifejackets and other appropriate lifesaving equipment.

Recommendation (Level A) – Replace the life raft straps with a quick release method of securing it.

Recommendation (Level B) - Replace the forward starboard anchor roller.

Recommendation (Level B) - Confirm that a circuit breaker is fitted for the bow thruster and anchor windlass.

Recommendation (Level B) – Confirm the AIS transceiver is working and displaying on the chart properly.

Other inventory items

Recommendation (Level B) – Confirm the condition of the outboard and dinghy.

Accommodation

Recommendation (Level A) – Replace the flexible rubber hose in the gas locker and at the cooker.

Recommendation (Level A) - Replace the hob burners on the cooker.

Recommendation (Level A) - Fit a gas alarm.

Recommendation (Level A) – Replace the bow thruster and windlass batteries.

Recommendation (Level A) – If marinas are to be used, fit an isolation transformer.

Recommendation (Level A) – Have an electrical engineer inspect the RCD and open neutral on the 230V system and remedy as appropriate.

Recommendation (Level B) - Tighten the water feed valve on the top of the water tank.

Recommendation (Level A) - Fit new clips to sanitary hoses in aft heads compartment and inspected hull in this area for sewage leaks.

Recommendation (Level B) - Fit a lanyard to the cap on the holding tank pump out and water tank filler units on deck.

Recommendation (Level A) - Fit ducting so that the blown air heater extracts air from a location that a heater or engine exhaust fault cannot reach.

Recommendation (Level A) - Fit a CO alarm in the main cabin.

Suggestions

- Consider checking the zinc anode on the bow thruster and consider fitting one or two anodes to connect to the rudder stocks in the lazarette lockers.
- Consider repairing the cracks at the forward base of the spray hood
- Consider mousing all shackles and replacing all C rings with split pins.
- Allow to replace covers, including stack pack
- Consider replacing the C clips in the turning blocks on deck with split pins.
- Check oil at the base of the leg.

- Consider fitting a larger bow anchor.
- Allow to replace the plotter.
- Consider fitting a bubble leak detector. Considered replacing the cooker.
- Consider fitting a suitable dedicated battery charger for the bow thruster and windlass.
- Allow to service diesel heater.

The survey is for the client with no liability to anyone else. The surveyor retains this report's international copyright and the report may not be copied or distributed in an form without the surveyor's express permission.

The full report should be read to obtain an accurate account of the vessel's condition.

Details of "....."

Type of vessel: Allure 44
Designer: Berret-Racoupeau / Darnet
Builder: Allures Yachts, France
Year of manufacture: 2009
Serial no/ HIN: FRA LPA4432D909
Registration:

Small Ships:
RCD Category: A (Max 9 crew and 1,760kg load)
Lloyds Register: n/a

Construction: GRP hull, deck and superstructure with lead lifting fin keel and twin GRP spade rudders.
Rig: Fractional Bermudan sloop.
Engine: Volvo Penta D2 75C (max propeller shaft power 72hp @ 2,800 rpm), indirect cooled 4 cylinder, turbo aspirated diesel engine. Serial number 5103 953834S.
Transmission: Volvo Penta MS150 S-B reduction box and sail drive. Serial number 31500738495, with a 3 bladed, left handed bronze Bruntons 'Autoprop' feathering and self adjusting pitch propeller

Length Overall	13.56 m
Length Water Line	13.56 m
Beam:	4.19 m
Draft: Min	0.98 m
Draft: Max	2.95 m
Displacement:	10,522 kg
Ballast	4,207 kg
Water capacity	540 ltrs
Fuel capacity	540 ltrs
Holding Tank	Not known

The above measurements were obtained from Allures Yachts inventory and sales particulars and have not been checked by me and so no guarantee of accuracy can be given.

A. Hull skin, structure and through hull fittings

A.1. Hull below Waterline

The hull below the waterline was constructed of a single aluminium shell moulding with welded internal scantlings of lateral frames and floors and longitudinal stringers (incorporating a keel matrix). Internally the shell plating and scantlings below the waterline were visible through access panels in the sole board, inside some lockers and under bunks. No, or very restricted, access was possible elsewhere.

a) **Coatings -** The vessel had a modest coating of soft eroding antifouling below the waterline which was holding well. There was also an epoxy coating below the anti-fouling. These coatings were only scraped off at the stern where blistering was seen. Here it was noted that the epoxy was not adhering to the plating and this should be rubbed back to the plating and re-coated with epoxy and anti-fouling. The epoxy coating will also need

replacing on wither side of the skeg and along a stip running laterally on each side of the hull by way of the skeg (where it appears no epoxy has been applied.

b) Damage – No damage was seen to the hull below waterline, although the paint coatings may have obscured this.

c) Plate thickness readings - Readings were taken with a Tritex Multi Gauge (multiple echo) ultra sound plate thickness meter. This meter reads through coatings. Calibration was set to aluminium alloy frequency.

The original plate thicknesses were estimated to be 10mm at the horizontal plate running along the centre-line and either side of the keel and 6mm elsewhere below and above the waterline. According to the manufacturers, the alloy grades were 5083 and 6005. However it was not confirmed which grade was used in which location.

Table 1: Moisture readings on the hull below the waterline

Location	Estimated Original Plate Thickness	Range below water-line (Tritex)
Below and above waterline.	6mm	5.7 (one reading only). Remainder: 5.8, 5.9 and 6.0 mm
Approx 1m either side of the centreline	10mm	10.0-10.1mm

Plate thickness readings varied relatively little across the hull. The thinnest reading (5.7mm) was below the water-tank. Here, based on this reading the plate had lost 5% of its original thickness. More widely, readings were 5.8 and 5.9 which represent a 3.3% and 1.6% loss. These readings are well within acceptable levels of plate-loss.

d) Corrosion - Two significant pits were noted on the hull below the waterline. One had a depth of 2.8mm and the other was 3.8mm deep (without removing the paint in the pits). Both were below the water tank. The inspection hatch on the fuel and water tanks were removed allowing inspection of approximately 25% of the water tank and 5-10% of the fuel tank. No issues were seen in the fuel tank (although it was difficult to see - with a torch - even directly under the inspection hatch). However a pit of between 3 and 4mm was noted in the water tank. These pits required repairing and the remainder of the water tank required inspection. This will require the galley sole board to be lifted or cut (it runs under furniture) and a significant proportion of the top of the water tank to be removed. After completing any further repairs that are necessary, coating the inside of the water tank with potable water grade epoxy is recommended. It is also suggested that the fuel tank is emptied and an additional inspection hatch is fitted to the fuel tank to allow more thorough inspection, carrying out repairs as necessary.

f) Welds - Hammer sounding revealed no indications of delamination of plating from the scantlings and no weld fractures were noted internally.

Recommendation (Level A) - Repair the three deep pits in the hull plating described in A.1.d.

Recommendation (Level B) - Replace the epoxy coating on the hull below the waterline where there is corrosion below the transom, either side of the skeg/keel casing and on a strip aft of the skeg across the hull.

A.2. Topsides

The hull above the waterline was of uncoated aluminium, except for the sheerline which had an epoxy and paint coating. Access internally to the topsides was very restricted - aft compartment anchor locker and sail locker only. While plating was not perfectly fair and some impact damage may have occurred (especially on the port side

forward of the midships), and while some of the painted areas were blistered, no significant damage or corrosion was noted. Hammer sounding externally, revealed no indications of weld failure between plating and scantlings.

A.3. Bulkheads and Structural Stiffening including internal mouldings

A number of components contributed to the overall structure of the vessel:

- The shell plating
- Longitudinal stringers at between 100 and 150mm centres below the waterline.
- Lateral frames
- Substantial lateral floors especially by way of the keel.
- Main and partial plywood bulkheads running laterally including aft and forward of the aft cabins and heads, forward of the main cabin and forward of the forepeak. The bonding between these bulkheads and the hull, was only seen in a very small number of places. Here bolt fastenings were seen. No signs of movement were seen except in the forward heads. Here very moderate signs of movement were detected between the main bulkhead and the partition on the centreline.
- The mast compression loads were taken onto a compression post below the deck and transferred to the hull immediately forward of the keel via an aluminium plate. No evidence of mast compression or resulting damage was noted.

A.4. Skin Fittings and through-hull apertures

Note: No skin fittings, tailpipes or valves were dismantled as part of this survey. These usually corrode from the inside.

There were 11 through-hull openings below the waterline. All were aluminium tube extrusions of approximately 200mm length welded vertically to the hull plating. Valves were fitted to all except the cockpit drains in the lazarette lockers. These valves were Randex valves manufacturers from polypropylene reinforced with glass fibre. Strong, highly corrosion resistant and inert to the aluminium. They can however become stiff and seize, especially when not opened and closed regularly. The engine water intake was on the sail drive leg with a brass valve fitted internally.

Locations were:

1. **Engine exhaust -** Port quarter, above static waterline. This was a stainless steel fitting. Secure to the hammer. with no signs of corrosion. No valve. Hose attachment stainless steel double clips, secure to the hammer. Hose in fair condition where seen.
2. **Cockpit drains -** Port and starboard lazarette. No valves. Double clips secure. Hoses fair.
3. **Engine water intake -** On the port side of the sail-drive aft of the engine. Brass ball valve requires replacing with DZR brass, bronze, Sofomarin, TruDesign or Florespar Marelon. A perished hose was seen under the main cabin sole and this was considered to be the engine raw water intake to the strainer. This black hose can be seen aft of the water strainer. It is in urgent need to replacement.
4. **Aft WC inlet -** Under the main cabin sole, inboard of the heads compartment. Double clips secure. Hose fair condition. Valve stiff.
5. **Three spare -** Two immediately forward of the aft WC inlet below the main cabin sole inboard of the aft heads compartment. A third to starboard of the centre-line immediately forward fo the engine. Valves in place and closed with handles removed and taped to the valve.
6. **Aft holding tank and WC outlet -** In the outboard locker in the heads compartment. Clips slightly corroded and valve seized. Free up or replace valve before re-launch.
7. **Aft shower outlet -** Outboard of the WC, on the static waterline a nylon skin fitting with no valve. Secure. Hose fair. Clips not reached.
8. **Aft heads sink outlet -** Under the sink unit in the aft heads compartment. Stiff. Double clips secure. Hose fair.
9. **Galley sink outlet -** Below the sink unit, below the waterline a nylon skin fitting with no valve. Secure. Hose fair.
10. **Forward heads sink outlet and WC inlet -** all secure. Hoses fair.

11. **Forward heads shower outlet -** Below the heads sink unit (on the static waterline but below it when at sea). Nylon skin fitting. Secure. Hose fair.
12. **Forward heads WC outlet -** Under the sink unit, stiff valve. Clips secure. Hose fair.
13. **Depth/log Transducer** - Under the forepeak sole board. Secure to the hull.

Well above the waterline

14. **Webasto heater exhaust -** On the sheerline on the starboard quarter. Stainless steel fitting secure.
15. **Electric and manual bilge pump outlets -** On sheerline on the starboard quarter welded tubing. Secure.
16. **Unidentified -** On the sheerline on the port quarter. Not seen internally. Nylon skin fitting secure externally.
17. **Anchor locker drain -** Directly through the hull on the bow above the static water line.

Wooden bungs secured with a lanyard were not seen by all through hull fittings below the waterline.

Recommendation (Level A) – Within two months, replace the engine inlet valve with DZR brass, bronze or glass reinforced 'nylon' (eg Sofomarine, TruDesign or Forespar Marelon ball valves).

Recommendation (Level A) – Before re-launch, replace the engine inlet hose and free up or replace the aft WC outlet to sea and any other stiff or seized through-hull valves.

Recommendation (Level A) – Ensure double clips are fitted on all bilge pump hose connections.

Recommendation (Level B) - Fit wooden bungs adjacent to all through hull fittings with a lanyard to ensure they remain ready in position.

B. Ballast keel, keel fixings and keel matrix

The vessel had a lifting fin keel made partly of lead (according to the manufacturers specification and the surveyors analysis that the keel is unlikely to be entirely lead). The joint was not seen. There was an aluminium keel casing or grounding skeg which protruded from the hull externally providing some protection for the hull when drying out.

a) **Keel Condition -** The keel had a soft antifouling paint coating. No paint was scraped off to inspect for an epoxy coating but no corroded aluminium adjacent to the keel was seen (lead is a very noble metal compared to aluminium and if the two metals connect electrically through the water and by a physical means - making a circuit - there will be rapid galvanic corrosion). Maintaining a good epoxy coating to isolate the lead and the aluminium from the sea water will help to minimise this. Please note in a previous section, the need to repair the epoxy coatings below the waterline. No signs of grounding were seen on the ballast keel. The keel was not noticeably bent.

b) **Keel fixings**

- **Pivot pins and friction pads -** The keel was attached to the hull by pivot pins (a stud welded on either side of the head of the keel. These were set in aluminium bearing housing plates on each internal side of the centre-board casing. These plates may hold bushes but this was not confirmed. With the keel hanging fully extended with no weight on it, there was minimal lateral tolerance. With the keel retracted (not fully), there was significant lateral tolerance or 'play'. This was due to the lateral support provided by four delrin (or other material) friction pads two on either side of the upper part of the keel. These rubbed on the keel casing, but were less effective when the keel was retracted. This tolerance will cause the keel to vibrate when underway at any speed with the keel retracted. This tolerance also suggests that the pivot pins, or the sockets they sit in, are worn. It is recommended that, (perhaps before the boat is re-launched), the keel is dropped for inspection and possible replacement parts. In particular, removing the friction pads will allow the tolerance in the pivot pin to be more accurately assessed and it will be important to check the electrical isolation of the lead keel from the aluminium part of the keel, the hull and keel casing.
- **Pennants, turning blocks and their fixings -** There was very limited access to the pennants, turning blocks and their fixings to the keel inside the keel casing. They were also covered with marine fouling. Dropping the keel will make it possible to clean and inspect these properly.

- **Keel casing -** Externally, no issues were noted apart from those mentioned above. Internally, corrosion was seen on the capping to the access for the pennant lines at the aft of the keel casing. This was not considered serious but it is an indication that electrical isolation is not adequate and this should be improved when the keel is dropped.

c) **Distribution of keel forces -** The keel forces were transferred away from the area of the keel's attachment via the 'keel matrix' of longitudinal 'stringers' and lateral 'floors' - described above, plus fuel and water tanks on each side of the keel casing and at least one box (or other) section lateral floor (seen at the forward end of the keel at the outboard end under the starboard main cabin bunk. No issues were noted but access was severely limited by furniture and tanks.

Recommendation (Level B) – Remove the keel to allow inspection of the electrical isolation between the lead and aluminium components, the pivot pins, the friction pads, the pennants and their blocks and fastenings.

C. Rudder and steering

A 'Jefa' steering system was fitted. With twin GRP rudders with aluminium stocks and tangs and rod steering to a single helm wheel.

a) **Rudder blades** - No delamination or voids were detected with the hammer on the blades which were considered to be foam filled. Moisture readings were between 30 and 35 in shallow mode and between 26 and 60 in deep mode. The highest two readings (in both shallow and in deep mode) were at the top of the blade where the stock entered the blade. Cracks were seen at the upper edges of the blades and water had been entering the blades. There were osmotic blisters on both blades. It is recommended that both blades are dropped and split open, removing the foam and bonding paste (which is thought to have failed in some places (this is common with rudder blades), inspecting the stocks and tangs for corrosion and laminating the tangs and stocks to one side (or both sides, if possible) of each blade.

b) **Rudder stocks -** The aluminium alloy rudder stocks were not seen between the blade and the hull. They were seen in each lazarette locker where the condition was fair. Aluminium rudder stocks are prone to corrosion and pitting especially if an iron or lead ballast keel is exposed to the sea water, setting up a galvanic cell. No grounding wire was seen connected to the top of the stocks, connecting them to an anode. This would help to reduce corrosion of the rudder stocks especially if the anode(s) was 'in sight' of the keel. It is recommended that the rudders are dropped -see above.

c) **Rudder skeg -** No rudder skeg.

d) **Rudder tube -** The aluminium rudder tubes were in fair condition. The seals at the top of the tubes were seen in fair visual condition but not seen at sea.

e) **Rudder bearings -** Minimal signs of wear noted on the rudder bearings.

f) **Rod steering –** A single aluminium tiller arm was fitted over the starboard rudder stock and two tiller arms were fitted over the port rudder stock. Each secured by a key and keyway and clamped with two stainless steel bolts. One of the port rudder tiller arms was fouling on the cockpit drain hose. Fit a longer hose to avoid this. A rod with rod-end joints was attached between the tiller arms on each stock. Joints (with Delrin balls in aluminium sockets) considered to have acceptable tolerances. A second rod ran forward from the port stock to a tiller arm at the base of the binnacle. Here the tolerance in the rod-end ball joints was fair to poor and these will require replacement in the medium term. Failure of these joints can result in loss of steering. A third rod was attached between the base of the binnacle and the autopilot drive. These rod ends had minimal tolerance. Other components were in fair visual condition. The Jefa wheel and binnacle was secure and in fair condition. A rudder stop was seen and considered adequate. The suede leather on the wheel was starting to come away from the wheel.

g) **Autopilot** – The control unit was mounted on the pod at the wheel in the cockpit and the drive motor was under to cockpit sole. When switched to 'Auto' mode, the control unit moved the rudder. A rudder position indicator (securely attached) was also seen to move on the control unit. The fluxgate compass was seen over the fuel tank and this was considered to be reading accurately. The autopilot was not fully tested and not tested underway.

h) **Emergency tiller –** An emergency tiller was seen stowed in the port lazarette and operated effectively on the

starboard rudder stock when tested.

i) **Bow thruster –** The bow thruster was fitted below the sole board in the sail locker forward of the forepeak. This board was not lifted. The thruster casing was corroded. As the boat was out of the water, the thruster was not operated (this could have damaged the motor with no resistance from the water). The impellers were mounted centrally in the tunnel. The anode was not seen. Internally, the tunnel welds were not seen.

Recommendation (Level A) – Drop the rudders to allow inspection of the stocks and tangs and to laminate these to one or both sides of each blade and rebuild, sheathing the blades with glass and epoxy to seal them.

Recommendation (Level A) – Regularly check the tolerance of the rod-ends on the steering rods and replace when necessary.

Recommendation (Level A) – Fit a longer hose to the port cockpit drain to avoid fouling on one of the tiller arms.

Suggestion - Consider checking the zinc anode on the bow thruster and consider fitting one or two anodes to connect to the rudder stocks in the lazarette lockers.

D. Deck

D.1. Hull-Deck Join

The hull and deck moulding were joined at the edge of the deck under the toe rail. This was only seen in a very limited part of the aft compartment. The transom was part of the deck moulding. The deck joint was bonded with sealant but not over-laminated. No bolts were seen. Where seen, there was no indication of water ingress.

D.2. Deck, coachroof and cockpit

The deck was aluminium and the coachroof and cockpit were constructed of a GRP moulding with cored sections. A separate moulding was fitted below the leading edge of the spray hood. This was laminated to the coachroof. Here some stress cracks were seen. This was considered to be a 'hard spot'. Consider repairing these cracks to prevent water ingress.

a) **Cosmetic condition, crazing, cracking and damage -** The appearance of GRP was generally good. No impact damage was seen. No moisture readings were taken. Two holes were seen on the leading edge of the coachroof which had been filled with sealant but this is likely to require replacement in the mid term due to UV damage. The aluminium was paint-coated and in a number of places this had blistered due to mild corrosion. It is not best practice to paint aluminium as this prevents the renewal of the aluminium oxide layer, which provides protection from corrosion.

d) **Delamination –** No delamination was detected on the coachroof.

e) **Hand rails –** There was a stainless steel handrail on each side of the coachroof. Secure.

f) **Distortion and compression –** The mast was deck-stepped. There was no indication of mast compression on the deck.

g) **Cockpit –** The cockpit drained through two drains at the aft of the cockpit.

h) **Anchor locker –** The anchor locker lid was aluminium. Hinges were fair. The catch was working. Not lockable.

i) **Sail locker -** The opening hatch was fair, but was fouling the staysail furling drum. This was lockable from the deck. The hatch hinge had been disconnected from the deck to allow it to fall right back and rest on the deck, allowing access. Lockable.

j) **Cockpit lockers -** Lazarette lid hinges were secure. Support gas struts supported the lids. The latches held the lockers shut but could not be locked. Side cockpit lockers were lockable with a padlock. Held open with a lanyard. The side cockpit lockers were sealed from the rest of the vessel. The port side locker doubled as a gas locker - see below.

Suggestion - Consider repairing the cracks at the forward base of the spray hood

D.3. Main companionway and other accesses to accommodation

These were:

a) **Companionway –** The bridge-deck was high. Two acrylic wash boards were seen in fair condition. The sliding hatch opened into a garage, also in fair order. Companionway steps were secure when engine access securely closed. No significant signs of water ingress were seen. Access could be securely locked.

b) Main cabin hatch – Two Lewmar hatches (with hinges aft) were fair to the deck, lockable from the inside and openable from the deck when unlocked. Acrylic was not crazed. No water ingress was seen. Aluminium frame was not corroded. Hatches were too small to allow a large sized adult to exit.

c) **Aft cabins -** One mall Lewmar hatch was fitted to the coachroof in each aft cabin. All fair.

c) Forward heads and forepeak - Two small Lewmar hatches, hinges aft. lockable from the inside. Not openable from outside.

d) Forepeak hatch – A single Lewmar hatch was fair to the deck, hinge aft lockable from the inside and openable from the deck when unlocked. Acrylic was not crazed. No signs of water ingress was seen. Frame not corroded. Hatch was too small to allow a large sized adult to exit. Locks and latches in fair condition.

D.4. Ports and windows

a) Opening Ports – Two Lewmar opening portlights were seen on each side of the coachroof aft. Two more opened to the cockpit from the aft cabins. All in fair condition with no signs of water ingress seen.

b) Fixed ports - Three fixed port lights were fitted on each side of the hull topsides. No sign of water ingress was noted. Two fixed lights were fitted on each side of the coachroof. All fair. A single fixed acrylic sheet covered three lights in the main cabin. All fair, with no signs of water ingress.

D.5. Pulpit, stanchions, pushpit guardrails and jackstays

These consisted of:

- **Pulpit** – Secure and in fair condition.
- **Pushpit sections** – Secure and in fair condition.
- **Stanchions and guard wires -** Stainless steel stanchions secured in aluminium bases. Fair condition. The guard wire was plastic-sheathed 4.0mm, 1x19 stainless steel using swaged terminals and clevis pins secured with C rings. These rings tend to open and fall out. Replace these with a more secure form of pin or ring or wire. The port upper guard wire was damaged and in need of replacement. Ideally, replace both upper guard wires and do not use sheathed wire.
- **Jackstays** – Jack stays not seen.
- **Cockpit safety line rings** A number seen.
- **Deck safety line rings** – A number seen.

Recommendation (level A) - Replace the two upper guard wires with un-sheathed 4mm stainless steel wire.

Recommendation (level B) - Replace the C rings securing the guard wires with a more secure means.

Recommendation (level B) - Fit jack stays.

E. RIG

E.1. Rigging attachment points

a) Forestay – The forestay was attached to a chain plate welded to the bow with reinforcement below the deck. There were no significant signs of corrosion or of weld failure. There was two-way articulation and alignment was fair.

b) Cruising chute - Top down furler and halyard attached to the forward end of the anchor mounting at the bow. Considered fair.

c) **Staysail stay -** Attached to a chain plate forward of the sail locker, welded to the watertight bulkhead. Alignment good with two-way articulation.
d) **Shrouds -** The two shrouds on each side were each attached to a chain plate fitting. The cap shroud chain plates were welded through the deck to a tie rod below deck which was welded to a reinforced fabrication on the side of the hull below the main cabin bunks. All considered fair below deck on the starboard side. Access prevented proper inspection in the port side, but what could be seen by camera was fair.The lower shroud chain plates we not seen behind panelling and headlining. On the starboard side above the deck, there were signs of corrosion and possible movement of the chain plates. These should be cleared of paint to allow proper inspection and repaired as required. The port side did not appear corroded and there were minimal signs of movement, which was possibly simply paint peeling. If movement or cracking is found on the starboard side then the port side should also be exposed. The shroud alignment was satisfactory. There was two-way articulation.
e) **Backstays –** The twin back stays were attached to a chain plate in each quarter. These were seen below reinforced down each side of the transom. There was two-way articulation. Alignment was good.

Alignment is necessary to reduce lateral forces on the wires, terminals or chain plates . Two-way articulation is necessary to minimise flexing as the wires continually tighten and slacken.

Recommendation (Level A) - Clear paint and corrosion from around the starboard chain plates externally, inspect and repair as appropriate.

E.2. Spars

These included double-spreader mast, boom and vang. The mast was deck-stepped.

a) **Mast and boom –** As far as could be seen from the deck with the mast stepped, the silver anodised aluminium mast and boom were in fair condition with negligible corrosion around fittings and rivets. However, the main sail track was damaged immediately above the upper car with the sail down. This damage was slight and may not affect the movement of the cars. Spreaders were of extruded aluminium. Spreader attachment to the mast was not checked. Cast aluminium spreader tips were also fastened to the spreaders. The spreaders' angle on the mast was considered satisfactory.
b) **Vang -** The vang was in fair condition. However the clevis pin at the attachment to the boom and the mast were secured with C clips which were opening. Replace these clips with split pins.

All fittings accessible from deck level were secure and serviceable.

Recommendation (Level B) – Replace the clips through the clevis pins at the top and base of the vang with split pins.

E.3. Standing Rigging

Wire and terminals – All were 1 x 19 stainless steel. Cap shrouds were 12mm. Lower shrouds were 10mm wire. Backstays were 8mm.

The forestay and staysail stay were not visible at bottom or the top of the foil and it was not possible to inspect the forestay inside the furling system nor the forestay, backstay or shroud terminals or fittings above the level of the deck or where they attach to the mast.

The shroud swage terminals and wires were considered in fair condition. Many insurers require standing rigging to be replaced at least every 10 years. It was reported that the standing rigging had been replaced recently. Evidence of this should be seen.

E.4. Running Rigging and Reefing

a) **Roller reefing –** There was a Facnor LX 200 furling system on the forestay. This was not operated as the boat was ashore. The lower swivel was considered serviceable. The halyard swivel was not seen as the sail was furled on. The foil was not inspected. A Facnor LW 165 was fitted at the staysail stay. The staysail was furled on. Lower

swivel considered fair condition.

b) **Main reefing –** Not checked, but two lines were seen fitted at the luff and the leech of the mainsail.
c) **Halyards –** The main halyard was not tested under load. Genoa and staysail were furled on with halyard tight.
e) **Other running rigging –** The running rigging, where seen, was generally in serviceable condition. Not fully inspected.

Suggestion – Consider mousing all shackles and replacing all C rings with split pins.

E.5. Sails and covers

a) **Main –** Condition was fair. Fabric was Dacron. The sail was attached to some cars on the track using elastic cord. This will need to be replaced periodically.
b) **Genoa –** Not inspected. UV strip may be approaching the end of its life.
c) **Cruising chute -** Relatively heavy-duty fabric seen in fair condition in bag. Top down furler fitted to sail but not tested.
d) **Staysail -** Not inspected. UV strip may be approaching the end of its life.
e) **Spray hood, stackpack wheel cover and other covers -** Fair condition but considered will be in need of replacement within one or two seasons.

Suggestion – Allow to replace covers, including stack pack.

E.6. Winches, clutches and other deck gear

a) **Winches – Cockpit coaming -** Two Lewmar 46 two speed self-tailing winches in fair condition and two electric Lewmar 54 self tailing two speed winches. All in fair condition, electric winches operated. **Coachroof -** Two Lewmar 46 self tailing two speed winches. The starboard side was electric. All fair condition. A thermal circuit breaker for the electric winches was seen in the port aft cabin.
b) **Genoa cars and genoa track, turning blocks –** All were considered secure and in working order, with minimal signs of wear. Many of the turning blocks were attached using C clips.
c) **Main sheeting attachments and travellers –** Main sheet attachment and traveller all sound and secure except a turning block on the starboard side was cracked and in need of replacement.
d) **Alder jib preventer -** Where the lines from this were attached to the coachroof, stress cracks were noted. These should be repaired to prevent water ingress to the core material.

Recommendation (Level B) – Replace the starboard mainsheet tuning block on the coachroof.

Recommendation (Level B) – Repair stress cracks at jib preventer to prevent water ingress.

Suggestion – Consider replacing the C clips in the turning blocks on deck with split pins.

F. Engine, fuel system, stern gear and cathodic protection

F.1 Engine and installation

A Volvo Penta D2 75C four cylinder, diesel engine was fitted. 72hp maximum power output (propeller shaft) at 2,800 rpm (maximum rpm 3,00). This was mounted on flexible engine mounts and aluminium bearers. It was indirectly cooled and aspirated by a turbo charger. The engine was seen running but not under load and not quite up to running temperature (it reached 60°C).

a) **Corrosion -** The overall appearance of the engine was good. Minimal corrosion was seen.

b) **Engine bearers and mounts -** Engine bearers were secure, where accessible (very limited). No cracking or weld failures were seen. The flexible engine mountings were considered in satisfactory visual condition and did not allow the engine to move excessively while at idle.

b) **Engine Oil –** No significant oil leak was seen. A very slight leak was noted under the forward main bearing but this might to be from a casket, not the main bearing. This should be monitored. The sump condition was good (where seen by photograph). There was no evidence of water (emulsified oil) in the oil on the rocker cover cap or on the dip stick. The oil was-clear but the level was over-full. When the boat is re-launched the level should be re-checked and if it is still high, then some oil should be removed to bring the oil to a correct level. No date was seen on the oil filter.

c) **Cooling Water system –** Where seen, cooling water hoses were in fair condition. Single clips were used on the raw water hoses. Secure where tested. Double clips should be used. The raw water pump was located on the starboard side of the front of the engine. The impeller was not inspected. A water strainer was fitted on the raw water intake and an anti-syphon loop with a vent (drain hose to bilge was blocked by a cable tie) was fitted to the raw water outlet to the exhaust injection. The vent was not checked. These do, occasionally, fail and can cause significant damage, even sinking if the engine inlet valve is left open.

The belt was sufficiently tight. The coolant pump will not operate if the belt fails. It is suggested spare belts are carried and the belt is regularly renewed.

The cylinder block was examined as far as possible with very restricted access and no cracks were seen. One of the core plugs on the cylinder head appeared to have signs of possible corrosion.This may however have been excess paint. The paint should be removed.

No emulsified oil was seen in the coolant or the expansion tank cap.

d) **Exhaust –** The exhaust elbow was hammer tested and found sound. Exhaust elbows do corrode from the inside and need to be replaced periodically. Failure not only results in loss of cooling but also fills the engine compartment/cabin with exhaust gases. It is good practice to carry a spare.

The exhaust hose was in fair condition where inspected. A water-trap and silencer was fitted aft of the engine. Clips not all reached. There was an anti-siphon swan neck in the aft compartment.

e) **Compression -** The engine started immediately the starter motor was engaged.

f) **Turbo charger -** The turbo charger was not fully tested with the engine running. No issues were seen but access was very restricted. and the hot side of the casings was covered with heat insulation preventing inspection of the bearing there for an oil leak.

g) **Engine Controls including stop –** Not fully tested but all appeared to operate normally. Throttle cable securely attached to the engine. Gear cable was secured with a small C clip and the clevis pin was upside down, meaning that if the C clip opened and worked loose, the gear cable would become disconnected from the reduction box. Alarms were not heard. The engine was controlled by an EVC. The emergency stop on the fuel pump worked when tested.

h) **Electrical –** The alternator was not seen charging the batteries. The alternator was in satisfactory visual condition. The starter motor operated. Ventilation was passive. The stop solenoid was not tested. The engine was (correctly) electrically isolated from the hull.

Recommendation (Level A) - When the boat is re-launched, check the oil level and, if necessary, remove some of the lubricating oil from the engine to bring the level down to 'full'.

Recommendation (Level A) - Check the anti-siphon loop vent on the raw water outlet and release the cable tie around the water hose from the vent tube.

Recommendation (Level A) - Check the port side of the cylinder head for core plug corrosion under the paint and replace or re-coat.

Recommendation (Level A) - Replace the C clip on the gear control cable at the reduction box with a split pin.

Recommendation (Level A) - Double clips should be used on all raw water and exhaust hose connections.

F.2. Fuel System

a) Tank material and bearers – The fuel tank incorporated the starboard side of the hull below the main cabin sole. It was in fair condition where seen. A shut off valve was seen on the top of the tank for engine feed. Return was not seen. There was an additional outlet for the heater.

Fuel gauge seen at chart table. Not calibrated.

b) **Filler/vent unit and hose –** The fuel filler unit on the starboard deck was connected by lanyard to the cap. The seal in the cap was in fair condition. The filler hose was not seen below deck. The vent for the fuel tank was not identified.

c) Fuel Pipe and hose – The flexible fuel hose fitted between tank and lift pump and on the return from the engine was ISO 7840 compliant fuel hose in fair condition.

d) Filters and bowls - The Racor primary filter was mounted forward of the engine, with a water trap and sight bowl. The secondary filter was on the engine. The fuel was clear.

F.3. Stern Gear

A Volvo Penta MS150 S-B reduction box and sail drive was fitted. A 3 bladed, left handed bronze Bruntons 'Autoprop' self-adjusting pitch and feathering propeller was fitted.

a) Mounting - Access aft of the engine was very restricted, but no issues were seen where inspection was possible.

b) Oil - Oil was clear from above the leg. The drain plug on the sail drive leg was not removed as the leg was set into a recess in the skeg preventing access by the surveyor's tools. It is suggested that the drain pug is removed to check the oil in the base of the leg (incase of a failed seal which would allow sea water into the leg causing corrosion.). The oil level was fair.

c) Diaphragm seal - Volvo recommend replacing the diaphragm every seven years. The date on the diaphragm was 2007. Replace the sail drive diaphragm.

d) Gator - Externally, the gator was in fair condition but it was not sitting fair to the hull. The gator will protect the diaphragm from perforation by debris

e) Leg Corrosion - Minimal corrosion was noted on the sail drive leg. No anti fouling was scraped off.

f) Propeller – The propeller was secure but one of the blades was loose. The propeller was considered to be in need of a service. Allow approximately £1000 for this.

g) Rope cutter – No rope cutter was fitted.

Recommendation (Level A) - Replace the sail drive diaphragm.

Recommendation (Level A) - Service propeller.

Suggestion - Check oil at the base of the leg.

F.4. Cathodic protection

The anode on the sail drive leg was not depleted. The anode on the propeller was in need of replacement. There were two anodes on the keel skeg and one on the keel. It is important to maintain electrical isolation between the lead keel and the aluminium hull, skeg and rudder stocks. The propeller has a rubber pad isolating the boss from the sail drive electrically. This isolation must also be maintained to protect the sail drive leg. An anode to protect the rudder stocks would reduce the risk of corrosion on the aluminium stocks.

Recommendation (Level A) – Replace the anode on the propeller.

G. Safety and other Equipment

G.1. Ground tackle and mooring arrangements

a) **Main anchor –** A Delta bower anchor was mounted on the anchor roller fitting. Considered serviceable. Weight was not seen but considered light. There was no provision to secure the anchor to the deck. There was provision to securely attach it to the stem head fitting only by tightening the chain. This had damaged the starboard anchor roller. There was no provision to prevent the chain lifting when deployed. The anchor was attached to the chain via a stainless steel anchor swivel. This was in fair condition.

b) **Main anchor chain and warp –** An unmeasured length (sales particulars say 50m) of 10mm chain was seen in fair condition in the chain locker. No anchor warp was fitted to the chain. The bitter end of the chain was seen shackled to the mounting plate of the windlass. This should be tied off with a lanyard thin enough to be cut with a knife in an emergency. The chain size and length was adequate for a vessel of this size.

c) **Kedge Anchor –** A kedge anchor was seen in the port lazarette.

d) **Anchor windlass –** A Lofrans Tigres 'horizontal' electric anchor windlass was fitted in the chain locker. It operated when tested but not tested under load. The clutch could be disengaged to allow quick dropping of the anchor by gravity. A circuit breaker was not seen. An isolator switch was seen at the chart table. It was not confirmed if this was activated thermally.

e) **Mooring cleats and fairleads –** There were six aluminium mooring cleats, two in the bow, two amidships and one in each quarter. These were fastened to the deck. All secure. Fairleads were fitted at all mooring cleats.

f) **Fenders -** A number fenders seen in fair condition.

Recommendation (Level A) - Remove the shackle on the bitter and of the anchor chain and tie this off with a lanyard that can be cut quickly in an emergency.

Recommendation (Level B) - Replace the forward starboard anchor roller.

Recommendation (Level B) - Confirm that a circuit breaker is fitted for the bow thruster and anchor windlass.

Suggestion - Consider fitting a larger bow anchor.

G.2. Bilge pumping arrangements

a) **Cockpit manual pump -** There was a manual bilge pump fitted in the cockpit. Capacity not known but as manufactured. It operated but with dry bilge it was not possible to check it fully. The strum box was seen aft of the fuel tank below the main cabin sole. Double clips are recommended on all bilge pump hose connections.

b) **Electric bilge pump -** An electric bilge pump was fitted adjacent to the port battery box. It was heard working with a dry bilge. The pump had an automatic or manual mode. The automatic function was not tested. An electronic water sensor was seen aft of the keel casing.

c) **Hoses** - The skin fittings were high on the port quarter. Hoses in fair condition where seen.

Recommendation (Level A) - Test both bilge pumps with water in the bilge including the automatic function on the electric pump.

Recommendation (Level A) - Fit double clips to all bilge pump hose connections.

G.3. Davits and Boarding Ladders

A fold-down davit arm was fitted. The boarding ladder extended to 600mm below the waterline. This is recommended for an MOB recovery.

G.4. Navigation Lights

The navigation lights were all working when tested.

If the lamps ratings are sufficiently bright, the vessel's navigation lights would conform to the Collision Avoidance Regulations.

G.5. Firefighting equipment

a) **Cabin fire extinguishers -** One in-date fire extinguishers was seen.

For a boat this size, the RYA recommends fitting at least four fire extinguishers with a minimum combined fire rating of 21A/144B. In this case, one in the main cabin, one in each aft cabin and one in the forepeak. An extinguisher at the galley is good practice.

Fire extinguishers should be serviced annually and replaced every ten years or replaced every five years if not maintained annually.

b) **Engine compartment –** The compartment could be sealed from the rest of the boat. A fire-port was seen under the companionway steps. The sound insulation was not tested for fire resistance. No automatic clean-agent gas extinguisher was seen in the engine compartment. It is recommended that one is fitted. Powder fire extinguishers can damage the engine.

c) **Smoke and CO alarms –** No smoke alarm was seen.

d) **Fire Blanket** – A fire blanket was seen at the galley. This complied with BS 1869..

e) **Petrol –** Petrol should be stowed on the aft deck or cockpit where vapours can drain overboard.

Recommendation (Level A) – Fit three new fire extinguishers in the aft cabin, main cabin and forepeak with a combined rating of 21A/144B.

Recommendation (Level A) – Fit a smoke alarm and an in-date automatic clean agent extinguisher in the engine compartment.

G.6. Lifesaving equipment

The following lifesaving equipment seen aboard:

- One horseshoe lifebuoy was seen with a light.
- An inflatable dan buoy was seen. A fixed dan buoy is recommended for coastal and offshore passages as inflatable type are not reliable.
- A 6 person Ocean Safety liferaft was seen in a canister on the transom locker. Serial number Y6-80-1531. This was due a service in February 2024. The securing straps required to be released quickly. Replace.
- No in date flares were seen.
- No thermal protective aids (TPAs) seen aboard (eg 'space' blanket)
- No EPIRB was seen.
- No radar reflector was seen on the mast.
- Life jackets were seen.

Recommendation (Level A) – Fit a rigid dan buoy with a light. Carry in-date flares, lifejackets and other appropriate lifesaving equipment.

Recommendation (Level A) – Replace the life raft straps with a quick release method of securing it.

More information can be obtained from the RYA.

G.7. Navigation equipment

The following were seen aboard operating unless stated

At the helm/companionway

- Plastimo Olympus 135 steering compass on helm binnacle. The light was not seen working. Compass over-reading approximately 5°.
- Simrad NX42 GPS/plotter on helm pod. Seen working and showing the correct position but not fully tested. Chart and plotter software may need updating. No AIS targets were seen. The control pad with left/right and up/dowen controls was not working reliably.
- Simrad AP24 autopilot control on helm pod. Seen switched on and working but not fully tested. Fluxgate compass reading incorrectly as mentioned above. Rudder position indicator seen operating but not calibrated.
- Comar CSB 200S - AIS transceiver and antennae spliced - not seen displaying targets on the plotter but seen switched on.
- Simarad IS20 wind indicator - analogue and digital.
- Simarad IS20 multi function display.
- Simrad radar scanner not switching on at plotter.

At chart table

- Standard Horizon GX 1850 GPS/E DSC VHF - switched on and working. Coast guard radio check "Good and Clear" (not Loud and Clear). MMSI number (235069723) seen entered into the radio. VHF antennae seen on masthead with spare also on masthead.
- Cobra hand held VHF not considered working.
- ICS Nav 6+ Navtex, seen switched on and working but not fully tested.
- AIS

Re-chargeable compressed air fog horn seen.

Day shape and anchor ball seen.

Recommendation (Level B) – Confirm the AIS transceiver is working and displaying on the chart properly.

Suggestion - Allow to replace the plotter.

G.8. Other inventory items

a) **Mooring lines -** Various mooring lines seen, in fair condition not fully inspected.
b) **Dinghy -** Included but not seen
c) **Outboard Motor -** Included but not seen

Recommendation (Level B) – Confirm the condition of the outboard and dinghy.

H. Accommodation and accommodation systems

H.1. Accommodation General

Overall the accommodation was in fair to good condition. Upholstery, head-linings, woodwork and trim were all in fair or good condition.

In the forecabin was a double V berth with a tailored mattress and an en suite heads compartment. Aft of that was the main cabin with dining area to starboard and galley to port (with cabinet refrigerator, butane cooker and stainless steel sinks). Aft and to starboard was the chart table to port and aft was a second heads. Cosmetic condition of the heads compartments was considered fair to good, though the aft heads mirror finished was deteriorating along the edges. In each quarter was an aft cabin.

Ventilation was good with hatches or opening lights in all cabins (forepeak had two hatches).

H.2 Gas Installation

When built, this vessel was compliant with the RCD. The vessel is not being coded for commercial use and the surveyor is not 'Gas Safe' registered. Some insurance companies require a declaration from the assured that the gas system conforms to ***current*** standards and if that is the case here upgrading may be required as a condition of the insurance policy. Some insurers judge a gas installation against ISO 10239. Even if the vessel is not required to comply with that standard it contains much advice. Information can also be found at www.boatsafetyscheme.com.

The boat had the following gas installation:

- Two 2.75 kg 'Camping Gaz' butane bottles with a shut off valve on the regulator seen in the port cockpit locker. Bottles secure. Locker sealed from the rest of the boat.
- The gas locker drained to the cockpit and overboard via a drain hole in the locker side, close to a cockpit drain. Note that while sailing the cockpit drains may be blocked by sea water.
- Gas regulator in fair condition.
- The flexible rubber hose in the gas locker was out of date and in need of replacement. The attachment to the side of the locker was satisfactory. There was a joint in the flexible hose which is not recommended.
- Copper pipe was not seen under sheathing.
- A shut off valve was seen below the cooker. Serviceable condition. Its location was adequately safe and obvious.
- The flexible hose to the cooker was out of date and should be replaced.
- The gimballed ENO cooker was in poor condition with two hob burners, grill and oven. The burners were worn and blowing and in need of replacement. All four flame failure devices functioned when tested.
- The hatch above the cooker provided ventilation.
- No other gas appliances seen on board.
- No gas alarm was. No gas bubble leak detector was seen.

Recommendation (Level A) – Replace the flexible rubber hose in the gas locker and at the cooker.

Recommendation (Level A) - Replace the hob burners on the cooker.

Recommendation (Level A) - Fit a gas alarm.

Suggestion - Consider fitting a bubble leak detector. Considered replacing the cooker.

Please note this survey is not a gas safety certificate, that is only obtainable after comprehensive pressure testing and assessment by a qualified person listed on the Gas safe register www.gassaferegister.co.uk.

H.3. Electrical installation

a) **Batteries and charging** – Below the port main cabin sole were three 12v DC 105 Ah, Varta batteries in one bank for domestic use. These tested 'Good' the bank showed 2515 cranking amps (EN), 100% state of health and charge and internal resistance of 1.35mR. The engine start batteries were to starboard inboard of the chart table. Tested separately, the inboard batteries showed 100% state of health and 1.7MR internal resistance. The outboard battery showed 80% state of health and 4.44MR internal resistance.

b) The bow thruster and windlass battery bank tested as a 24V system with a reading of 36V. However, only one 12V battery was seen and tested. This was a 50Ah Optima Blue Top AGM battery.It tested with 39 cranking amps CCA, 5% state of health and 72.07MR internal resistance. This battery is considered beyond service life and in need of replacement. The installations were clean and tidy. Electrolyte levels (sealed batteries) were not seen and battery sides were not all seen (battery sides can indicate damaged plates).

There were isolating switches for each of the battery banks under the port aft cabin bunk and under the forepeak bunk.

When batteries are charging they produce hydrogen gas, which is lighter than air but explosive. No special provision was seen for ventilation of hydrogen, though sealed batteries only produce hydrogen when they are failing.

Charging was by a single alternator on the engine (not seen charging) and from shore power, by a 230v battery charger in the port aft cabin (seen charging with shore power connected). The bow thruster/windlass battery is likely to have failed because it is an AGM battery and is being charged by the main battery charger which is controlled by the engine start or domestic service bank, or possibly, only by the engine alternator, in which case it will develop 'sulphation' on the plates.

b) Circuit protection – 12v DC circuits had circuit breakers mounted on a panel at the navigation station. All switches operated. Cabling was tidy behind the two panels with minimal retrospective cabling fitted.

c) Cabin lighting –Cabin lights were all seen working except the port aft cabin spot light and the forward heads light.

d) 230 volt shore power – 230v AC shore power system was fitted. Shore power circuitry was not fully inspected. There was an RCD in the starboard lazarette compartment. This tripped off when the test button was depressed but not when a test meter was used to trigger the RCD. MCBs were seen behind the chart table panel for battery charger, water heater and sockets. A galvanic isolator was seen in the starboard lazarette. Not tested. For an aluminium boat, which can experience dramatic galvanic corrosion from leaking current or from a faulty shore system earth connection or another vessel will benefit from an isolation transformer instead of a galvanic isolator.

A test meter in the galley socket showed an open neutral fault. For the RCD and for the open neutral fault, an electrical engineer knowledgeable in aluminium boats should inspect the 230V system.

e) Inverter - A 300W inverter was seen but not tested.

Recommendation (Level A) – Replace the bow thruster and windlass batteries.

Recommendation (Level A) – If marinas are to be used, fit an isolation transformer.

Recommendation (Level A) – Have an electrical engineer inspect the RCD and open neutral on the 230V system and remedy as appropriate.

Suggestion - Consider fitting a suitable dedicated battery charger for the bow thruster and windlass.

H.4. Fresh water tank and delivery

The aluminium water tank was below the portside of the main cabin sole. It was integral to the hull. The tank had an inspection hatch. The filler hose was in fair condition where seen. The feed valve on the top of the tank was loose. The seal on the filler unit cap on the port fore deck was fair. The cap was not attached to the filler unit by a chain. The tank vent was seen on the port topsides. A gauge was seen working at the chart table, but was not calibrated.

The calorifier was in fair visual condition and not tested while shore power was connected.

Freshwater hoses, where seen, were in fair condition. No leaks were seen and the pump did not cycle with taps closed (indicating drop in pressure caused by a leak).

The electric water pump operated when switched on and delivered water to the galley sink and heads sinks and showers.

Recommendation (Level B) - Tighten the water feed valve on the top of the water tank.

H.5. Heads

The WCs were both manual seawater flush, securely mounted, with discharge to the holding tank only or sea in the aft heads and only to sea in the forward heads. The WC units were in fair visual condition. Hoses and clips were sound to the hammer and secure.

The WC and holding tank discharge hoses were sanitary grade and in fair to poor condition in the aft heads and some of the clips had started to corrode. Sewage is corrosive to aluminium. The HDPE holding tank drained by gravity. Capacity not seen. The tank was seen. No leak was noted but access was very restricted. The cap on the pump-out fitting on deck was in fair condition. The cap was not connected by lanyard to the unit. The seal was satisfactory. The shower waste pumps both operated when switched on.

Recommendation (Level A) - Fit new clips to sanitary hoses in aft heads compartment and inspected hull in this area for sewage leaks.

Recommendation (Level B) - Fit a lanyard to the cap on the holding tank pump out and water tank filler units on deck.

H.6. Heating and refrigeration

a) **Fridge –** There was a thermostatically controlled compressor-cooled fridge in a cabinet at the galley (compressor not seen). The fridge became cold when switched on.

b) **Heating –** A Webasto Air Top diesel blown air heater was fitted in the port aft cabin aft of the steering. The capacity was not confirmed. The unit operated when switched on but did not ignite possibly due the to high temperature in the cabins.

b) **CO alarms -** No CO alarm was seen.The blown air heater obtained its air from the aft compartment. If there was a fault with the exhaust hose, CO would be blown into the cabins. Ducting should be attached to the blown air intake on the heater and lead to a location away from this danger.

Recommendation (Level A) - Fit ducting so that the blown air heater extracts air from a location that a heater or engine exhaust fault cannot reach.

Recommendation (Level A) - Fit a CO alarm in the main cabin.

Suggestion - Allow to service diesel heater.

I. Security

Main cabin access – Secure and lockable. **Cockpit lockers –** Lockable. **Anchor locker -** Not lockable.

J. This Vessel and VAT, RCD, and Part 1 Registration

The vessel surveyed here was built after the Recreation Craft Directive became mandatory. The CE plate was seen.

Unless she is used commercially she will not require to be certified by one of the MCA's certifying bodies.

She was not Part 3 Registered (under the Merchant Shipping Act) Small Ships Register.

As this vessel was commissioned after 1st Jan 1985 she is not eligible for 'deemed VAT paid' status from HMRC and VAT status may need to be proved. Proof of VAT status may be required when sailing to an EU member state post 1st January 2021 or on returning to the UK after a number of years away from British waters. The original sales invoice was not seen.

The above is not intended as advice but only as an introduction to these subjects. If there is any doubt, contact the RYA, MCA, or HMRC Recreational Boat Helpline in Portsmouth.

K. Scope, Limitations and Declaration

This full condition survey was carried out in accordance with my standard Terms of Business. Its purpose is to establish the structural and material condition of the vessel and systems.

- The inspection uses a sampling process as it is not practical to cover 100% of all aspects 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).
- Mechanical condition of the engine is not covered under the terms of the survey, only the installation and visual condition were inspected.
- 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 the limitations of time, vessel presentation and the range of tests (excluding destructive testing or dismantling) acceptable to the owner.
- Some components may appear serviceable but are found defective when under load.
- 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.
- The survey carries with it no guarantee against faulty design or latent defects or suitability of the vessel for any particular purpose, nor any guarantee of compliance with any particular national or international rule, requirement, regulation, law, standard or code unless specifically stated in this report.

The survey is for the client with no liability to anyone else. The surveyor retains this report's international copyright and the report may not be copied or distributed in an form without the surveyor's express permission.

Declaration - This report is as true and accurate a description of the vessel as could be ascertained at the time of the survey, but no guarantee is given or implied.

Andrew Edmond (24th June 2023)