



ANCHOR HOUSE MARINE SURVEYS

Full Condition Survey Report

Hanse 455

'Ratatosk'

Hamble Point Marina, Hamble, Hampshire, UK

Thursday 14th and Friday 15th March 2024

Prepared on Behalf of the Purchaser



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Summary

'Ratatosk' is a Hanse 455 built in 2015 by Hanse Yachts, Greifswald, Germany to a design by Judel / Vrolijk and Co. She was found to be in overall very good condition for her age, showing evidence of having had light use. She appears not to have been altered from her original design. The main summary of points is as follows:

1. The topsides, deck and superstructure are in overall very good condition structurally with no clear signs of any major damage or repair. There is salt water under the galley sink bilge space.
2. The outer bottom laminates were tested for moisture content and the resulting readings were all in the dry to low medium scale. The saildrive collar anode is not bonded to the leg.
3. The keel is in a serviceable condition and all internal fixings are free from corrosion.
4. The stern gear is in a serviceable condition.
5. The steering gear is in a serviceable condition.
6. The mast and rigging is in a serviceable condition though many rigging shackles do not have their pins wired to prevent accidental unscrewing.
7. The accommodation and interior furnishings are in a clean and serviceable condition.
8. The domestic systems are in a serviceable condition overall, though the gas locker and cooker flexible hoses require replacement, some of the seacocks require servicing and there may be a small leak from the calorifier.
9. The bilge pumping system is in a serviceable condition.
10. The electrical installation is in a serviceable condition, though there are loose wire runs under and behind the chart table in the electronics space.
11. The fuel installation is in a serviceable condition, but there is a leak from the fuel sender unit and one of the wires is broken.
12. The engine is in good cosmetic condition, but the oil level is low.
13. The fire extinguishing installation requires updating and there are no gas alarms fitted.
14. The TV does not work via the remote and the 'Fusion' system appears stuck.
15. Oil sample analysis reports returned as satisfactory for both engine and gearbox.

Following completion of the work detailed in this report and subject to a continual program of routine maintenance, 'Ratatosk' should continue to give good service for many years.

Within this report principal repair recommendations are graded for your information according to priority as:

"Urgent Recommendation"

Must be done urgently before re-floating and certainly before any use is made of the vessel.

"Recommendation"

Should be done at the earlier of next docking or within twelve months or such other time scale as may be specified.

"Suggestion"

For information and consideration but not particularly significant to safety at this stage.

"Note"

For information only.

Circumstances

The survey was carried out on the 14th and 15th of March 2024. 'Ratatosk' was inspected ashore at Hamble Point Marina in Hamble, Hampshire, UK. The mast and rigging were standing. The weather at time of inspection was partial cloud, some light rain and with varying north westerly winds at 12°C. The survey was carried out on the instruction of [REDACTED] to ascertain the condition of the yacht and produce a report prior to purchase.

No fastenings were drawn and no paint was removed above the water line externally. An area of paint was removed below the waterline to determine coatings makeup. Moisture meter readings were taken to determine the moisture content of the hull laminate. The hull was examined externally above and below the water line and internally where accessible, elsewhere internal mouldings prevented examination. The cabin soles, bunk boards, hatches and portable joinery were removed as necessary to gain access to the interior of the vessel. The engine was not stripped, the tanks were not opened unless stated, nor their capacities checked. The batteries and the electrical systems were tested including interior and exterior lights. Equipment and interior fittings were tested as far as practicable and as described below.

Please note: This condition report is correct as per the date of survey stated above and as such, it cannot be guaranteed for any time after the survey was undertaken.



Description of the Vessel

'Ratatosk' is an all glass fibre construction, round bilge, iron fin keeled sailing yacht. She has a plumb entry and a transom stern, carrying her maximum beam aft of amidships.

She was built by Hanse Yachts, Greifswald, Germany in 2015.

The vessel's principle dimensions as supplied are set out below:

Length Overall	13.55m
Length of Waterline	12.20m
Beam	4.38m
Draft	2.25m (approx.)
Displacement	11.60 tonnes (approx.)
Engine	Volvo Penta D2-55 4-cylinder diesel
Stern Gear	Saildrive
Fuel Capacity	220 litres (approx.)
Water Capacity	450 litres (approx.)
HIN	DE-HANV0054E515
RCD	A



Hull and Superstructure

Hull:

All GRP construction with plumb entry and round bilge with a shallow bilge running aft to a transom stern. She has an iron fin and bulb keel bolted through the hull and her maximum beam is carried just aft of midships. The hull is in good condition overall.

Port Topside:

This is in white GRP with grey gel-pigmented cove line and twin waterline stripes. This is generally sound with only light signs of normal wear and tear, but there are no signs of any major damage or repair. There are no fore and aft sling tags fitted.

Starboard Topside:

This is in white GRP with grey gel-pigmented cove line and twin waterline stripes. This is generally sound with only light signs of normal wear and tear though there is sun bleaching to the waterline stripes, but there are no signs of any major damage or repair. There are no fore and aft sling tags fitted.

Bow:

This is generally sound with only light signs of normal wear and tear with no clear signs of any damage or repair.

Transom:

This is in white GRP with a hinged bathing platform securely fitted. This is generally sound but in addition to light signs of normal wear and tear there is a light, small stress crack in the port edge, but there are no signs of any major damage or repair.

Attachments:

The transom incorporates a large bathing platform which is securely hinged to the transom. This is laid with a synthetic teak deck panel which is in a serviceable condition and the ram and check straps are securely fitted.

Coatings:

The antifoul is in grey and is adhering well to the GRP with no signs of any detachment, though there are some early signs of flaking at the waterline. A scraping confirmed coatings consist of antifoul over a grey primer, which is / was production standard, and there are no epoxy resin coatings.



Fig.1 – hull coatings consist of antifoul over a grey primer.

Suggestion

Add sling tags.

Suggestion

Repair the stress crack to improve the cosmetic appearance.

Suggestion

Consider applying an epoxy resin to prolong hull life, after a sustained period of drying out ashore.

Gel Condition:

The gel was inspected and appeared smooth with no clear signs of any blistering, delamination or damage.

Hull Below Waterline:

Moisture readings were taken with a 'Protimeter' Aquant 2 meter at approximately 80 positions over the outer hull. The scale used is 0 – 160 (dry) / 161 – 200 (medium) / 201 – 999 (wet) and the following readings were obtained:

- Hull – readings ranged from 70 to 165 which is in the dry scale with the highest areas are forward, outboard and aft of the keel. It is understood the bilge in this area had salt water in it due to an engine issue. There is still some residual dampness and an area of salt water still.
- Keel to hull join – readings ranged from 135 to 165 which is in the dry scale.
- Rudder – readings ranged from 120 to 400 which is in the dry to medium wet scale, though the highest readings are only located around the stock inlet area on both sides. This is most likely due to the meter reading the stock itself (metal is read as wet), though it might be due to some water ingress through the stock to rudder join. However, the forward edge of the rudder in that area returned dry readings. There is a low wet reading at the aft edge of the base and this is likely due to water ingress into the laminate because of the damage.

Keel and Bolts:

The keel is an iron fin with bulb securely fitted to the hull. This is in a serviceable condition, though there are some areas where corrosion is breaking through such as around the lower edges of the bulb. The keel to hull join is clean with no signs of any cracking, movement or corrosion weeping, though there is some very light corrosion at the palm ends breaking through. Internally, the stainless steel bolts and nuts are fitted over galvanised steel backing plates and these are all in a clean condition with no clear signs of any leaks or corrosion noted. However, due to a previous leak from the engine, the aft plate is salt scaled, the mast lightning conductor / earthing strap bolt is corroding and there are areas of salt water remaining along the plate edges.

Recommendation

Remove all water residue and clean off the scale and corrosion.



Fig.2 – scale on the keel aft backing plate and corrosion to the earthing strap bolt.

Deck Tray:

There is a GRP deck tray matrix bonded to the hull incorporating frames and intercostals. This also provides support for the bonded bulkheads and where seen, there are no clear signs of any movement.

<p>Floors and Stiffening:</p> <p>There are fore and aft stringers securely bonded to the hull along its length with no clear signs of any movement.</p> <p>Bulkheads:</p> <p>The partial bulkheads are in veneered / lined, marine ply and securely bonded to the deck tray, hull and deckhead. The main bulkhead forward is in composite carbon fibre and where seen, there are no clear signs of any movement, though there is some light evidence of a possible old leak around the port base of the main bulkhead from the forward heads.</p> <p>Hull Openings and Fittings</p> <p>Sea Water Coolant Inlet:</p> <p>The engine coolant inlet is located on the leading edge of the saildrive leg and this is clear of debris.</p> <p>Toilet Inlets and Outlets:</p> <ul style="list-style-type: none">The toilet inlets are located forward and aft of midships on the port side outboard of the centre line and are secure, small bore plastic fittings in good condition.The toilet outlets are located forward and aft of midships on the port side and are secure, medium bore plastic fittings in good condition. <p>Grey Water Outlets:</p> <ul style="list-style-type: none">The galley sink outlet is located aft of the keel on the starboard side and is a secure, small bore plastic fitting in good condition.The heads sink and shower outlets are located forward and aft of midships on the port side and are secure, small bore plastic fittings above the waterline. <p>Bilge Outlets:</p> <p>Located on the transom are secure plastic skin fittings for the bilge pump outlets and other drains which are all double clipped to clear, wire reinforced hoses internally where seen.</p> <p>Exhausts:</p> <ul style="list-style-type: none">Located aft on the starboard side and above the waterline is a stainless steel exhaust fitting.Fitted extreme aft on both topsides below the deck edge are polished stainless steel diesel heater exhausts. <p>Cockpit Drains:</p> <p>The cockpit drains forward and discharges via clear, wire reinforced hose which is double clipped to a brass bodied ball valve seacock fitted to a small bore plastic fitting forward of the saildrive. The seacock is tight to turn and has areas of corrosion, particularly to the handle. No 'CR' (corrosion resistant) markings were noted.</p> <p>Scuppers:</p> <p>The deck drains directly overboard forward and aft.</p> <p>Tank Vents:</p> <p>There are 'Vetus' flush stainless steel tank vents securely located through each topside for the water, fuel and waste tank vents.</p> <p>Transducers:</p> <p>Located forward of the keel on the port side is an 'Airmar' Smart Tri Multisensor thru-hull transducer which is securely fitted and the paddle wheel spins freely. Internally, there are no clear signs of any leaks.</p> <p>Cathodic Protection</p> <p>Anodes:</p> <ul style="list-style-type: none">There is a collar anode securely fitted to the saildrive.There is a cone anode securely fitted to the propeller boss.There is a rectangular anode securely fitted forward of the rudder. <p>Bonding:</p> <p>The collar anode is not electrically bonded to the saildrive, but the cone anode is electrically bonded to the propeller. The cone anode continuity is very good and resistance is around 1Ω. The rudder anode bonding could not be checked as it was out of reach, but the stock collar connection has corrosion to it and some broken wire ends.</p>	<p>Recommendation</p> <p>Monitor for any leaks.</p> <p>Recommendation</p> <p>Service the seacock.</p> <p>Recommendation</p> <p>Ensure all anodes are electrically bonded to their respective areas.</p>
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Wastage:

The collar anode is not wasted, the cone anode is wasted by up to 40% and the rudder anode wasted by around 5% approximately.

Stern Gear

Saildrive:

This is a 'Volvo Penta' 130S-B and is securely fitted. The body is in aluminium, protective coated, there was no excessive movement noted and the hull gaiter is in a serviceable condition.

Propeller:

The propeller is a securely fitted 'Flexofold', bronze, 3 bladed, left hand turning example with no signs of any dezincification though it is scaled. The blades are all securely fitted, free from any excess play and all blade edges and tips are clean.

Shaft:

The saildrive shaft rotated smoothly in both directions when turned by hand.

Steering Gear

Mechanism:

The rudder is turned via twin 'Jefa Steering' helm pedestals securely fitted in the cockpit. These are connected to the stock tiller by a securely fitted, rose-jointed link arm and accessed via the removable deck panel aft. The carbon fibre helm wheels are securely fitted and with a central wheel lock and the installation operated satisfactorily which negligible play noted as best as could be established.

Rudder:

The GRP rudder is an unsupported long type of aerofoil blade design and the structure is in a serviceable condition, though there is an area of light damage to the base aft corner which is through to the laminate.

Recommendation

Replace the cone anode.

Recommendation

Repair the rudder damage.



Fig.3 – damage to the rudder base end.

Stock:

This is in aluminium alloy and where seen, this is in a serviceable condition.

Bearing:

No play was detected in the bearings.

Trunk and Gland:

The stock runs in a tapered GRP trunk to the underside of the deck where it is topped with a gland / bearing which is in a serviceable condition.

Bow Thruster:

There is a 'Quick' retractable bow thruster fitted and this is in a serviceable condition, though there are some areas of corrosion noted to some of the fixings etc. The lowering mechanism is in a serviceable condition with the main connections securely pinned with some natural play noted. This is fitted with 2 x 4 plastic bladed propellers and these rotated satisfactorily without any binding against the tunnel and with minimal backlash. Internally, the motor is securely fitted to the sealing box with no leaks noted or water in the bilge and all connections to and from the local battery are clean and tight. The installation operated satisfactorily from the starboard helm control.



Fig.4 – corrosion to some of the bow thruster fixings.

Recommendation

Clean up all fixings.

Deck and Superstructure

Deck:

The side decks and cockpit are in white GRP with synthetic teak panels laid on the horizontal surfaces and there is a moulded, full length GRP toe rail moulded. The is in a serviceable condition with good sealant joins between the margin boards and superstructure / toe rail, but there is no edging sealant at the ends of both side deck sections or the windlass section. There are no clear signs of any major damage or repair. However, behind the starboard seating aft in the saloon, there is a very small amount of old salt water that might have come through a deck fitting, but it cannot be known for sure. It is best to clean up and monitor for any return and therefore, locate a possible source.

Superstructure:

The superstructure is in white GRP with synthetic teak panels laid on the horizontal surfaces. This is in a serviceable condition but there is a small stress crack in the moulding adjacent to the hatch lid, there are some scratches and light gelcoat damage around the spray hood mounts, some scuffing in the cockpit seat backs on the starboard and the sealant at the edges of the section forward of the mast has gaps and breaks in the sealant on both side.

Hull Deck Joint:

The deck is laid over the hull inward flange and bonded together with the deck stanchion sockets and cleats etc bolted through. Where visible, there were no signs of any movement.

Recommendation

Clean up the salt water deposits and monitor.

Suggestion

Repair the small gelcoat defects and replace areas of poor sealant.

Hatches Windows and Port Lights

Main Hatch:

The main hatch consists of 2 x collapsible acrylic sections that slide down into the sill via securely fitted solid plastic guide blocks. The top section securely locks to an acrylic lid with teak pusher that slides on plastic runners securely fitted to the top of the hatch moulding and the lid slides smoothly.



Fig.5 – edging sealant with gaps and breaks forward of the mast.

Fore Hatches:

There are 2 x 'Lewmar' aft hinged shaped, smoked acrylic panes that seal to white painted aluminium frames securely fitted over the forward cabin. The acrylic is clean, the seals are serviceable, there are 2 x internal locking handles and 2 x rotary locking stays with no clear signs of any leaks. However, there is some bubbling of the paint in areas and the internal plastic trim is beginning to crack.

Additional Hatches:

- There are 4 x 'Lewmar' square, forward hinged smoked acrylic panes that seal to white painted aluminium frames securely fitted over the saloon. The acrylic is clean with the aft panes fitted with vents, the seals are serviceable there are 2 x internal locking handles and 2 x rotary locking stays per hatch with no clear signs of any leaks. However, there is some bubbling of the paint in areas and the internal plastic trim is beginning to crack.
- There are 4 x 'Lewmar' rectangular, inboard hinged smoked acrylic panes that seal to white painted aluminium frames securely fitted over the forward cabin heads, aft heads and galley. The acrylic is clean, the seals are serviceable and there are 2 x internal non-locking handles per hatch with no clear signs of any leaks.
- There are 2 x 'Lewmar' rectangular, aft hinged smoked acrylic panes that seal to white painted aluminium frames securely fitted over the aft cabins. The acrylic is clean, the seals are serviceable and there are 2 x internal non-locking handles per hatch with no clear signs of any leaks.
- There is a 'Lewmar' square, forward hinged smoked acrylic pane that seals to a white painted aluminium frame securely fitted over the fore peak tank. The acrylic is has some light crazing, the seal is serviceable, there are 2 x internal locking handles and 2 x rotary locking stays with no clear signs of any leaks. However, there is some bubbling and detachment of the paint in areas.

Suggestion

Repair areas of bubbling and paint detachment.

<p>Windows:</p> <ul style="list-style-type: none"> There are 4 x 'Lewmar' openable windows securely fitted to the coach roof sides. These consist of smoked acrylic glazing which seal against serviceable seals and have 3 x securing handles and inner plastic trim. The starboard forward window showed a light leak aft at the time of survey after rain. In each topside, there 3 x flush fitted windows securely bonded to the hull, 2 x letterbox types and one larger unit. There were no clear signs of any leaks, though there is some evidence of a possible leak from the lower forward corner of the saloon based window on the port side when you catch the light on the joinery. <p>Portlights:</p> <p>There are 2 x 'Lewmar' openable portlights consisting of black painted aluminium frames with inner plastic trim, clean acrylic, serviceable seals and 2 x securing handles.</p> <p>Hatch and Window Covers:</p> <p>All deckhead hatches and side windows have internal sun blinds fitted and these are all serviceable, though the fore hatch blinds require some servicing.</p> <p>Hand Rails and Stanchions</p> <p>Pulpit and Pushpit:</p> <p>There are stainless steel tube pulpit and pushpit installations securely fitted and these are in a serviceable condition.</p> <p>Stanchions:</p> <p>There are 6 x tapered, port and starboard, stainless steel stanchions and 4 x side gate supports securely fitted to the toe rail.</p> <p>Guardwires:</p> <p>There are stainless steel upper and lower guardwires secured forward and tensioned by bottlescrews aft. These are all pinned where seen, but some of the wires are slightly slack.</p> <p>Handrails:</p> <ul style="list-style-type: none"> 2 x stainless steel tube rails securely fitted to the coach roof, though the starboard unit is loose. 2 x deck to deck head handrails securely fitted at the base of the steps, though the port side unit is very loose / rotates. 2 x deckhead rails in the saloon which are securely fitted. <p>Ground Tackle and Mooring Arrangements</p> <p>Anchor:</p> <p>There is a galvanised steel, good condition 20kg delta anchor lying loose in the fore peak tank and has been disconnected from the chain and shackle.</p> <p>Chain:</p> <p>The main anchor cable is a length of 10mm galvanised steel chain. The chain bitter end is connected to a length of cuttable cord secured to a strong point on the base of the fore stay chain plate.</p> <p>Windlass:</p> <p>The windlass is a 'Quick' horizontal windless with cable gypsy only. This is securely fitted and is operated by a 'Quick' handheld remote control with the socket below the fore peak hatch. However, despite all isolators and switches this could not be made to work, though the purchaser did report that he managed to get it working in the end.</p> <p>Stem Head:</p> <p>There is a chromed, fabricated stainless steel stem head securely fitted at the bow with a single nylon roller and security bar fitted.</p> <p>Cleats:</p> <p>There are 6 x collapsible polished stainless steel mooring and spring cleats fitted through the toe rail and these are in a serviceable condition.</p>	<p>Recommendation</p> <p>Monitor the window for any further leaks and resolve if it continues.</p> <p>Recommendation</p> <p>Repair the blinds so they store correctly.</p> <p>Recommendation</p> <p>Tighten any slack wires and ensure all connections are pinned.</p> <p>Recommendation</p> <p>Tighten all loose handrails.</p>
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Mast, Spars and Rigging

Mast:

The 'Selden' anodised aluminium mast is in a serviceable condition as seen from the deck. The fittings and plates are in a good serviceable condition. There is no compression post as this has been replaced with the carbon fibre composite bulkhead.

Spreaders:

There are 2 x pairs of anodised aluminium swept back spreaders securely connected and pinned into mounts fitted to the mast when viewed from the deck. There was no excessive movement in these when the caps were shook.

Foot and Step:

The mast is deck stepped on the coach roof reinforced moulding and securely riveted to the cast aluminium foot, which in turn is securely bolted to the deck with no evidence of any movement or cracking across the fixings. The wiring is retained in a sheath which then fits into a polished stainless steel gooseneck.

Boom:

The 'Selden' anodised aluminium boom is in a clean and serviceable condition with clean aluminium end caps securely riveted in place. The forward cap is laterally connected and pinned to the cast aluminium hinge piece and the hinge is vertically connected and pinned to the securely bolted cast aluminium mast mount. The topping lift is securely fitted, but the shackle pin is not wired.

Rod Kicker:

The 'Selden' rod kicker with vang system is in a serviceable condition. The rod kicker is securely connected and pinned to the boom underside and to the cast aluminium hinge, which in turn is vertically connected and pinned to the securely bolted cast aluminium mast mount. The 'Selden' vang is in a serviceable condition but the ropework is weathered and stained and the shackle pins are not wired to prevent accidental unscrewing.

Stays and Reinforcements:

- There is a 'Selden' Furlex 304S furling system forestay fitted which is in a serviceable condition. This is securely fitted and pinned to the bow stem chain plate and the drum, which rotates freely. The polished stainless steel chain plate is securely fitted with serviceable fixings.
- The aft stay consists of a 1 x 19 stainless steel wire fitted to a block that has a 7mm 1 x 19 loop to make twin stays. On the port side, this is fitted to a stainless steel hoop chainplate via a shackle whose pin is not wired and on the starboard side, this is fitted to a 'Selden' tensioner which is securely fitted and pinned to the hoop chainplate.

Shrouds and Chainplates:

- The cap and lower shrouds consist of 10mm 1 x 19 stainless steel wire.
- The inter shrouds could not be reached for inspection, but they appeared serviceable from the deck, though some of the bottlescrew tape is detaching.
- For all shrouds, there are no clear signs of any wire breaks or corrosion at the swaged joints. These are securely fitted to open, chromed bronze bottlescrews which are all pinned and taped. The bottlescrews are securely connected and pinned to the polished stainless steel chainplates with no clear signs of any deck or topside cracking or movement. Internally, the connections and reinforcements are hidden behind the fitted joinery sections and could not be inspected.

Sails and Deck Gear

Main and Jib / Genoa:

All sails were stowed / removed and were not inspected, so the purchaser should satisfy themselves that these are all in a serviceable condition.

Winches:

There are 4 x 'Lewmar' 50 power, twin speed, self-tailing winches, 2 per side securely fitted through the cockpit coaming. 2 of these are electric and these operated satisfactorily via the switch and all 4 operated satisfactorily via winch handle. However, the aft winches on electric operation showed differences in the centre spindle speeds, which may mean the winches require a service.

Recommendation

Wire the securing pins of all the various, relevant rigging shackles to prevent accidental unscrewing.

Recommendation

Service the electric winches if required.

[illegible]

Gas and Domestic Installation

Locker and Bottles:

This is located under the starboard helm seat and contains a 'Campingaz' 2.75kg butane gas bottle which is in an average to poor condition but not secured in place. The locker drains through the hatch base and directly overboard. There is a second bottle located in the locker and this is in a poor condition. There are various items in the locker which should be removed as they could trap any leaking gas.

Regulator and Hose:

- The 'Gok' regulator is in a serviceable condition but is a little loose and spins.
- The orange gas flexible is BS 3212 compliant and securely connected at both ends but fitted with a 'replace in 2021' label and so it must be replaced.

Gas Pipe and Cut Off Valve:

The pipe is in drawn copper from the locker, is sheathed and is in good condition where seen. There is a cut off valve securely located in the locker under the oven and this operated satisfactorily. The flexible hose connecting to the oven is the same as the gas locker also with a 'replace in 2021' label, so this must be replaced.

Cooker:

- There is an 'Eno' stainless steel oven with 3 x hob burner with oven and grill securely mounted in the galley on the starboard side. This is gimbaled with a good lock, the oven element is in a serviceable condition where seen and the whole is in a clean and serviceable condition but was not tested.
- There is an 'LG' microwave oven fitted into the cabinetry at the galley and this operated satisfactorily.

Refrigerator:

Located outboard in the galley is an 'Isotherm' 12V top loader fridge with freezer compartment and wine cooler with separate stainless steel door and this operated satisfactorily. The internal light is erratic.

Heater:

Securely located behind the aft cabin bulkheads are 2 x 'Eberspacher' Airtronic diesel heaters which are in a serviceable condition and operated satisfactorily. The control panel is located at the chart table and the trunking and splitters are in a serviceable condition. The air flow in the forward cabin is very poor.

Calorifier:

Securely fitted aft of the drive train is a 'Sigmar Marine' engine and 240V element immersion heated calorifier. This is in a serviceable condition with generally clean fittings, though the hot water take off connection from the thermostat is showing all over corrosion and a possible light leak and there is some damage to the lower engine coolant hose surface. This operated satisfactorily via the immersion element.

Fresh Water Installation

Deck Filler:

There is a stainless steel deck filler with securely fitted through the starboard side deck forwards. The seal has perished and the securing chain is fitted.

Tank:

There is a plastic water tank securely fitted under the forward cabin bunk with no clear leaks noted. The inlet is in clear reinforced hose and the vent is in clear, wire reinforced hose, both securely double clipped at both ends to a stainless steel thru-bulkhead fitting and the same is fitted on the other side to the tank. However, the inlet as it enters the fitting in the fore peak tank is kinked / squashed. The outlet is in blue reinforced hose, securely double clipped and there is a cut off valve fitted which is very tight to turn.

Pump:

There is a 'Jabsco' ParMax 2.9 12V pump securely located under the forward heads sink. The inlet and outlet is in double clipped blue reinforced hose via a strainer and the outlet is connected to the main white plastic pipework and this operated satisfactorily. No pressure accumulator was seen fitted, but water pressure was good and no clear leaks were noted where seen.

Urgent

Recommendation

Replace both gas locker and cooker flexible hoses and service or replace the regulator.

Note

Gas systems and appliances must be maintained and or checked by a suitably qualified gas engineer conversant with the requirements of BS 5482 Part III or its modern equivalent.

Recommendation

Have the diesel heater trunking looked at to determine poor air flow to the forward cabin.

Recommendation

Service the calorifier fitting.

Recommendation

Replace the seal.

Urgent

Recommendation

Clean the water tank and flush the system. Water tanks should be cleaned annually by super chlorination and flushing prior to use each season. Remove the kink in the inlet hose and free up the cut off valve.

<p>Pipework: The pipework is run in white plastic hose for the mains runs. These are secured to red and blue pipe and steel braided flexible hoses with brass connection and these are in a serviceable condition with no clear leaks noted. There is some surface corrosion to the aft heads connections.</p> <p>Taps:</p> <ul style="list-style-type: none"> Galley – there is a hot and cold chromed mixer tap securely fitted though with some light movement noted in the spout and this operated satisfactorily on both hot and cold, though the initial discharge was brown water. Heads – there are hot and cold chromed mixer taps securely fitted and these operated satisfactorily on both hot and cold, though the initial discharge was brown water. The spout is a removable wand type and there is some light pitting in areas. Shower – there are hot and cold chromed mixer taps with separate wand securely fitted in each heads and these operated satisfactorily on both hot and cold, though the initial discharge was brown water. Deck shower – this is fitted inside the port helm seat locker and operates satisfactorily but leaks through the spout to hose join. Also note that the locker hinges are loose. <p>Sewage and Bilge Installation</p> <p>Sink Drains, Seacocks and Pipework:</p> <ul style="list-style-type: none"> The galley twin sink unit drains directly overboard via clear, wire reinforced hose which is double clipped to the sink drains and double clipped to a brass bodied ball valve seacock. No 'CR' marks were noted. This is seized open but is in a serviceable condition, though there is around 2" of salt water in this section. The heads sinks are circular china bowls and these drain directly overboard via clear, wire reinforced hoses which are single clipped to the sink drain and double clipped to brass bodied ball valve seacocks which operated satisfactorily and are in a serviceable condition. The forward heads sink push-release drain plug is jammed shut and the seal is broken. <p>Shower Drains: The heads shower drains are pumped directly overboard via 'Jabsco' 12V pumps with inlet strainer securely fitted adjacent to the toilet inlet seacocks and these operated satisfactorily via the switches in the heads. The inlet and outlet pipework is in double clipped clear, wire reinforced hose and are double clipped to brass bodied ball valve seacocks securely fitted under the heads sinks. These operated satisfactorily and are in a serviceable condition.</p> <p>Toilets: This is a 'Jabsco' china bowl, manual flush toilet in each heads which are securely fitted with serviceable seats and lids. These should be tested for leaks when the yacht has been launched.</p> <p>Toilet Seacocks and Pipework:</p> <ul style="list-style-type: none"> The inlet seacocks are brass bodied ball valve seacocks which operated satisfactorily and are in a serviceable condition. The pipework is in clear, wire reinforced hose, and double clipped to the seacock and toilet pump. There is some water and salt crystals around the forward inlet seacock. The holding tank outlets are in sanitary grade hose, double clipped to the tanks and the brass bodied ball valve seacocks. These are in a serviceable condition, have safety locks but are a little tight to turn. <p>Holding Tanks: Located in behind the heads cabinetry are securely fitted plastic holding tanks which are of the gravity discharge type and both toilets pump directly to the tanks. The pipework is in sanitary grade hose, all securely double clipped but there is a small leak run from the inlet connection to the aft heads tank. The stainless steel deck fittings are located forward and aft of midships on the port side but both seals have perished, with the forward seal broken.</p> <p>Electric Bilge Pump: There is a 'Rule' 1100 gph automatic bilge pump with separate float switch securely fitted in the saloon aft bilge and single clipped to clear reinforced discharge hose. This operated satisfactorily via float switch and the switch at the 12V switch panel.</p>	<p>Recommendation Tighten the loose hinges and service the deck shower wand to hose join.</p> <p>Recommendation Free up the seacock, remove the salt water and monitor for any return after launch.</p> <p>Recommendation Free up the sink plug and replace the seal.</p> <p>Recommendation Service the forward heads inlet seacock.</p> <p>Note All seacocks must be 'CR' or 'CW602N' marked types, full bronze types or 'Marelon' plastic types. Do not use 'CW617N' marked brass types if / when replacing any seacocks.</p> <p>Recommendation Service the aft tank inlet and replace both deck seals.</p>
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Manual Bilge Pump:

There is a hand operated manual bilge pump securely fitted in the port helm seat base and the mechanism dry operated satisfactorily. There is a strum box fitted to the bilge adjacent to the electric bilge pump and double clipped to clear, wire reinforced hose.



Fig.6 – corrosion and runs from the aft holding tank inlet.

Electrical Installation

Batteries:

- Engine starter – there is a 'Varta' 12V 90Ah (specification stated) battery securely fitted above the engine and where accessible, this has clean terminals and tight cables but the strap is loose.
- Domestic systems – there are 2 x 12V 160Ah (specification stated) sealed batteries securely fitted under the saloon port seat. These have clean terminals, tight cables and are parallel connected.
- Bow thruster - there is a 'Varta' 12V 95Ah securely fitted to port of the thruster assembly which has clean terminals, tight cables and a main fuse.

Isolators:

- There is a removable key isolator for the engine located behind the starboard aft cabin door and this operated satisfactorily.
- There is a removable key isolator for the domestic systems located under the saloon port seat and this operated satisfactorily.
- There is a removable key isolator for the bow thruster located by the thruster battery and this operated satisfactorily.

Charger / Inverter:

There is a 'Mastervolt' Mass Combi 12V 60Ah 1600W combination battery charger and inverter securely fitted behind fixed panelling on the port side by the chart table. This operated satisfactorily on both charger and inverter settings via the chart table control unit.

Shore Power and RCD Unit:

The 240V AC inlet plug is located in the port helm side locker and is wired to a main breaker located upper aft in the cockpit port locker. This was not seen at the time of survey, only partially in a photo so this was not tested. This, in turn, is directly wired to the 240V AC switch panel securely fitted in the aft face of the saloon port seat. This operated satisfactorily and the RCD test switch cut off and reset the panel breakers only when tested. This unit incorporates the immersion heater switch and this also operated satisfactorily.

Recommendation

Ensure the inlet mains breaker operates satisfactorily.

Switch Panels:

- The 12V DC switch panel is located at the chart table on the port side in the saloon. This is well laid out and operated satisfactorily at the time of survey.
- The 240V AC systems are switched via the panel on the aft face of the saloon port seat and these operated satisfactorily.

Wiring:

Where visible, the wiring has been installed in accordance with good engineering practice but is production standard and suitably laid out and fitted to bulkheads etc. Under the chart table and behind the removable panel, there are a lot of loose wire and cable runs which should be tidied up so they don't cause any issues with the main board. The panel handle is missing. There are various 240V sockets fitted and these tested for correct polarity.

Lights:

There are various switched deckhead and bunk lights throughout the accommodation and these all operated satisfactorily bar the deckhead light before the aft port cabin.

Galvanic Isolator:

There is a 'Whisper Power' WP-GI 16A unit securely fitted aft in the cockpit port locker.

Fuel Installation

Deck Filler:

There is a stainless steel deck filler securely fitted through the aft end of the starboard side deck. The seal has perished and the securing chain is fitted.

Tank:

There is a plastic tank securely fitted under the starboard aft cabin bunk. The inlet and vent hoses are in ISO 7840 compliant hose and securely double clipped to the fittings and the tank. There is fuel on the tank surface and around the tank sender unit, two screws are proud and one of the sender wires is broken, explaining the switch panel tank display error.

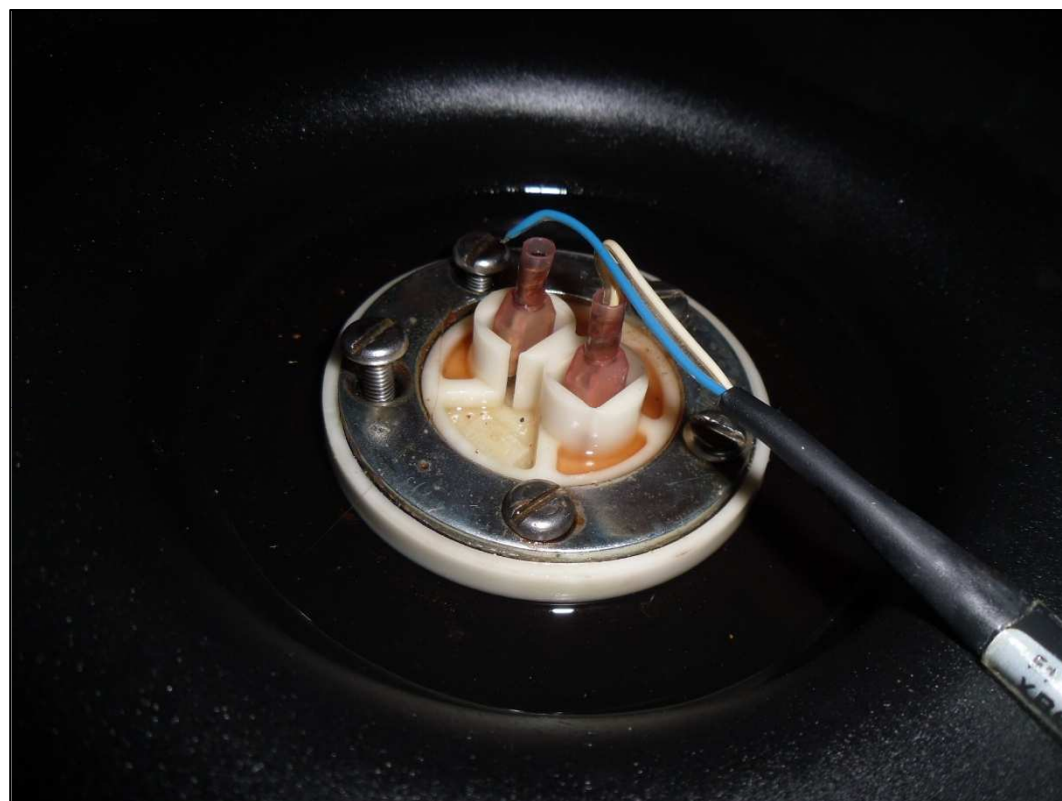


Fig.7 – fuel leaking from sender unit with proud screws and broken sender wire.

Fuel Cut Off Valves:

There are 3 x cut off valves located in the engine and diesel heater outlet lines of the tank and these operated satisfactorily.

Distribution:

This is suitable and in accordance to good engineering practice.

Recommendation

Tidy up the loose wire runs and secure.

Recommendation

Ensure all lights operate.

Recommendation

Replace the seal.

Urgent Recommendation

Fix the fuel leak from the sender and reattach the wire.

Pipework:

The flexible pipework is in ISO 7840 compliant hose and securely single clipped from and to the tank, with the diesel heater fuel lines being double clipped and sheathed.

Pre-filter:

There is a 'Volvo Penta' fuel / water separator with solid bowl and drain tap securely fitted forward of the fuel tank.

Machinery

Engine:

The engine is in good cosmetic condition with no clear signs of any corrosion or leaks, though the earthing bolt on the port side of the block is corroding and there was water in the air filter sponge cover at the time of survey. The compartment is lined with insulation panels but is collapsing in areas and the engine's main details are:

Make	Volvo Penta D2-55F
Rating	55hp @ 2,700 to 3,000 rpm
Serial No	5103938005A
Engine Hours	141 (approx.)

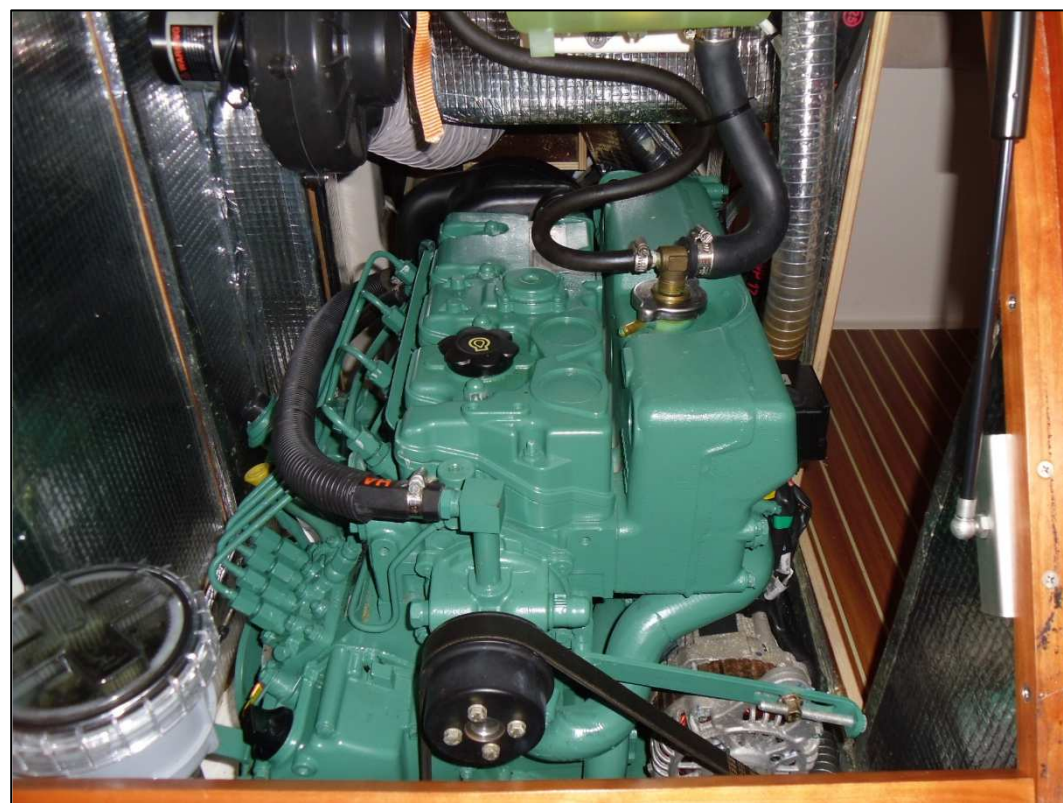


Fig.8 – Volvo Penta D2-55 4-cylinder diesel engine.

Gearbox:

The gearbox is in good cosmetic condition, but the various attachments to it and those surrounding the aft end of the engine are showing areas of surface corrosion. The ring seal is pliable but there is oil / fuel, water and general dirt in the various grooves and there is corrosion around some of the mounting plate bolts etc. The gearbox's main details are:

Make	Volvo Penta 130S-B
Ratio	2.19:1
Serial No	51220237814

Bearers and Mounts:

The powertrain is firmly secured to lengthwise strong GRP beams via 2 x engine mounts and an aft saildrive mount. These are in a serviceable condition, though with some surface corrosion to the aft mount, but there is no excessive movement of the engine when rocked by hand.

Suggestion

Consider having a commissioning inspection and full service undertaken prior to launch.

Recommendation

Clean up the saildrive ring and mount spaces. Clean off all fittings corrosion and preserve with 'Tectyl' or similar.

Suggestion

Clean off all corrosion and preserve with 'Tectyl' or similar.

Seacock and Strainer:

This is a bronze bodied ball valve type which is tight to turn and has corrosion to the handle and salt deposits around the join of the body and hose indicating a possible slight leak. The outlet pipework is in double clipped, wire reinforced hose but is not fire resistant. This is double clipped to a 'Vetus' strainer securely fitted forward in the engine compartment.



Fig.9 – oil / fuel / water and dirt in the ring seal and mount bolt corrosion.

Hoses:

These are in a serviceable condition, securely single clipped with no clear signs of cracking or leaks where seen.

Cooling:

The engine is cooled indirectly by seawater supplied by an engine driven impeller type pump which is in a serviceable condition. The main circulation pump and intercooler are in a serviceable condition with no signs of any leaks or salt deposits around the intercooler end caps. The antifreeze based coolant is clear and protects to -10°C, but a little low.

Exhaust:

The exhaust gases from the manifold and downpipe travel through double clipped exhaust grade trunking to a securely fitted 'Vetus' water lock. This then runs aft where it is looped up and double clipped to the exhaust fitting.

Lubricants:

- The engine oil is lightly carboned, viscous and reading around 1/3 full on the dipstick.
- The gearbox oil is clear, viscous and reading overfull on the dipstick.

Fluid Tight:

There were no clear signs of any major leaks from the engine.

Control System:

The engine control is via a single lever, mounted by the starboard helm in the cockpit, operating gear and throttle via 'Morse' type cables.

Ancillaries:

The engine is fitted with an alternator which supplies charge to the yacht's batteries when the engine is running and this is securely fitted with a correctly tensioned belt.

Recommendation

Free up and service the seacock. Replace the main coolant hoses with a fire resistant type.

Recommendation

Top up the coolant as part of a service.

Recommendation

Replace the lubricants and to correct levels as part of a service.

<p>Fire Fighting Equipment <i>Accommodation:</i> The accommodation extinguishers need to be replaced as they are all out of date.</p> <p><i>Galley:</i> A fire blanket is located at the galley.</p> <p><i>Engine Compartment:</i> There is no automatic extinguisher fitted in the engine compartment, which is advised, though there is an opening in the steps to accept an extinguisher nozzle manually.</p> <p><i>Gas / CO / Smoke Alarms:</i> There is a 'Kidde' CO (believed to be) alarm lying loose in the starboard aft cabin and this operated satisfactorily via the test switch.</p> <p>Lifesaving Appliances <i>Life Jackets:</i> None seen aboard at the time of survey.</p> <p><i>Flares:</i> There is an 'Ocean Safety' Coastal Flare Pack in the cockpit locker which expired in 12/2023.</p> <p><i>Life Raft:</i> Securely fitted in a recess in the port side of the transom is an 'Ocean Safety' 8 person cannister life raft with painter line attached. This was last serviced in May 2019.</p> <p><i>Life Buoy:</i> There is an 'Ocean Safety' horseshoe life buoy with light fitted to the port side pushpit.</p> <p><i>Additional Equipment:</i> There is a 'Trem' security rope located in the cockpit port locker.</p> <p>Navigation and Ancillary Equipment <i>Navigation Lights:</i> There are pulpit mounted port and starboard navigation lights, a steaming light, mast top tri-colour and anchor lights and a stern light. All these operated satisfactorily, though it was too bright to see the mast top lights working.</p> <p><i>Compass:</i> There is a 'Garmin' floating card compass fitted to the back end of the cockpit table in a serviceable condition.</p> <p><i>GPS / Chartplotter:</i> There are 'B&G' multi-purpose units fitted at each helm and these operated satisfactorily, though the starboard screen has some issues with purple lines visible.</p> <p><i>Echo Sounder / Log / Wind Direction:</i> There are 'B&G' display units located at both helms and these all operated satisfactorily.</p> <p><i>VHF:</i></p> <ul style="list-style-type: none"> • An 'B&G' V50 VHF radio with handset is fitted at the chart table and the Solent Coastguard replied the signal was 'loud and clear' when tested on channel 67. • There is a 'B&G' wireless H50 located by the saloon port window but was not tested. <p><i>Autopilot:</i> There is a 'B&G' autopilot fitted at the starboard helm and this operated satisfactorily.</p> <p><i>Covers:</i> There is a grey sprayhood fitted with a serviceable stainless steel tube frame and the mounting blocks are securely fitted.</p> <p><i>AV Equipment:</i></p> <ul style="list-style-type: none"> • There is a 'Samsung' LCD TV securely fitted to the saloon forward bulkhead, but this could not be activated by the remote. There could also be something moving around inside the remote. • There is a 'Fusion' player fitted in the saloon with 2 x speakers in the saloon and cockpit and a remote unit fitted by the port helm. These did not work and the chart table based unit appears stuck on as 'Fusion' is showing on the display. 	<p>Urgent Recommendation Replace the accommodation fire extinguishers and install an automatic 'clean agent' unit in the engine compartment. Install CO alarms in each cabin and saloon space and add a gas alarm at the galley.</p> <p>Recommendation A selection of life jackets for the number of persons aboard and flares suitable for the expected cruising range should be carried. A useful guide is RYA publication C8.</p> <p>Urgent Recommendation Service the life raft.</p> <p>Urgent Recommendation Ensure all navigation lights operate satisfactorily.</p> <p>Recommendation Fix the TV (remote) and the Fusion system so that they operate.</p>
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Oil Sample Analysis Reports

Engine

Sample No. P24032489-001	Report Date: 21/03/2024	Unit ID	HANSE
		Description	RATATOSK
Customer	Anchor House Marine Surveys	Make	ENGINE
	Rupert Keyzar	Model	455
	15 Fallow Crescent	Location	AHMS
	Hedge End		
	Hampshire	Oil in Use	
	SO30 2QQ		
*****SATISFACTORY*****SATISFACTORY*****SATISFACTORY*****			
<p>SYMPTOMS: Wear metal levels and physical properties within our recommended limits.</p> <p>DIAGNOSIS: Unit satisfactory. Lubricant fit for service.</p> <p>ACTION: Re sample at scheduled interval.</p>			
Date Sampled	15/03/2024		
Date Received	20/03/2024		
Date Tested	21/03/2024		
Oil Life (hrs)			
STATUS	NORMAL		
- PHYSICAL PROPERTIES			
Viscosity @ 40°C	cSt	103.5	
Water Content	%wt	0.0	
TBN	mgKOH/g	n/a	
Fuel Dilution		n/a	
TIM		0.2	
SPECTROCHEMICAL ANALYSIS			
Iron	ppm	15	
Chromium	ppm	0	
Aluminium	ppm	9	
Molybdenum	ppm	37	
Copper	ppm	4	
Lead	ppm	0	
Tin	ppm	0	
Nickel	ppm	0	
Silicon	ppm	40	
Sodium	ppm	9	
Boron	ppm	88	
Vanadium	ppm	0	
Calcium	ppm	3290	
Phosphorus	ppm	983	
Zinc	ppm	1050	
Magnesium	ppm	52	
Barium	ppm	0	

Gearbox

Sample No. P24032506-001	Report Date: 22/03/2024	Unit ID	HANSE
		Description	RATATOSK
Customer	Anchor House Marine Surveys	Make	GEARBOX
	Rupert Keyzar	Model	455
	15 Fallow Crescent	Location	AHMS
	Hedge End		
	Hampshire	Oil in Use	
	SO30 2QQ		
*****SATISFACTORY*****SATISFACTORY*****SATISFACTORY*****			
SYMPTOMS: Wear metal levels and physical properties within our recommended limits.			
DIAGNOSIS: Unit satisfactory. Lubricant fit for service.			
ACTION: Re sample at scheduled interval.			
Date Sampled	15/03/2024		
Date Received	20/03/2024		
Date Tested	22/03/2024		
Oil Life (hrs)			
STATUS		NORMAL	
PHYSICAL PROPERTIES			
Viscosity @ 40°C	cSt	87.93	
Water Content	%wt	0.0	
TBN	mgKOH/g	n/a	
Fuel Dilution		n/a	
PQ INDEX	PQ	11	
SPECTROCHEMICAL ANALYSIS			
Iron	ppm	25	
Chromium	ppm	0	
Aluminium	ppm	2	
Molybdenum	ppm	47	
Copper	ppm	7	
Lead	ppm	4	
Tin	ppm	0	
Nickel	ppm	0	
Silicon	ppm	42	
Sodium	ppm	10	
Boron	ppm	84	
Vanadium	ppm	0	
Calcium	ppm	1400	
Phosphorus	ppm	988	
Zinc	ppm	1110	
Magnesium	ppm	814	
Barium	ppm	0	

Statement

This report is a true and accurate description of 'Ratatosk' as far as could be ascertained at the time of the survey, but no guarantee is given or implied. We have not inspected equipment, woodwork or other parts of the structure which are not included within this report or were covered, unexposed or inaccessible and we are therefore unable to report that any such part is free from defect.

The potential purchaser should satisfy themselves that all systems which could not be tested or inspected at the time of survey are operable.

The yacht has not been examined for compliance with any code, rule, or craft directives and no opinion as to such compliance is expressed or implied.

This report is provided for the sole use of the instructing client named within this survey report and no liability of any nature will be accepted by the surveyor to any third party.

This report is submitted without prejudice.



Rupert Keyzar
AssocIIMS

Anchor House Marine Surveys
24th of March 2024

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