MMM SURVEYS

REPORT NO 20/20

PRE-PURCHASE SURVEY ON JEANNEAU SUN ODYSSEY 29.2

Date of Survey: 09 Dec 2020

Customer: x
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1. AIM

The aim of this report is to state the surveyor's findings in relation to the condition of the vessel prior to purchase of the vessel

2. SUMMARY

The vessel was in very good overall condition for her age. The hull was sound with no evidence of osmosis. Minor repairs are required to the starboard rudder and the keel needs some work to address the corrosion in the coming seasons. The mast, boom and rigging were renewed in 2019. Key safety items to address are fire extinguishers, smoke alarm, CO alarm and the engine battery venting. Addressing the corrosion on the keel could be relatively costly as the stub keel may have to be removed. The remaining defects will be relatively inexpensive to action.

3. THE SURVEYOR

Mark has been a professional Marine Engineer since joining the Navy in 2003. He is a qualified Head of Department, Machinery Control Room Supervisor and Docking Officer. He has been a member of the Institute of Marine Engineering, Science and Technology (IMarEST) since 2004 and is registered with them as a Chartered Engineer **(IMarEST No 613407)**. In 2007 he signed up to a Diploma in Small Craft Surveying with Lloyds Maritime Academy obtaining a Merit one year later **(Diploma Reg No SmCrSur 0708-033)**. He became a member of the International Institute of Marine Surveying in 2019 **(IIMS No 1341)** and was approved as a **Certifying Authority Examiner** in January 2020. A full CV is available on request.

4. INTRODUCTION

Date and Location of Survey. The vessel was surveyed on Wed 9 Dec 20 at Strangford Lough Yacht Club, Whiterock, Newtownards.

Weather. The weather was dry with some showers and the temperature was 4^{o}C.

General Limitations. You should have been sent a copy of the Terms and Conditions prior to commencing the survey. You should read the section headed 'Limitations of Survey' before reading further; if you do not have a copy please contact us (contact details are on the cover page) to request one.

Limitations specific to this survey are listed below and throughout the report.

- The vessel was sitting on blocks and struts which prevented access to those areas of the hull and keel.
- The vessel's interior flooring, cabinetry and general fit-out prevented access to parts of the structure and parts of some systems.
- The lifting keel was retracted.

5. THE VESSEL

Jeanneau Sun Odyssey 29.2 Specification. She was a 2000 (claimed by the owner and verified by the hull ID number) fractional rigged sloop sailing vessel. Her hull and superstructure were of GRP construction. The hull form was displacement with a lifting keel and twin rudders. The vessel had a double berth forwards, a midships saloon with a pair of bench seats, a galley and a chart

area, an aft cabin with double berth to port and heads to starboard, and an aft cockpit. She had a single diesel engine on shaft drive and cable steering. The following table lists the vessel's approximate specifications:

Length Waterline	8.5m	**Length Overall**	8.8m
Hull Draught	0.75m		
Displacement	1050kg		
Hull ID No	FRIRI100298F000 (stbd topside)	**RCD Category**	B (Offshore), 6 persons. C (Inshore), 8 persons. Max load 960kg. (Cockpit, stbd)
Yard No	292 No 44 (stbd topside)	**Registration**	SSR 93066

Documentation – VAT Status. There was no evidence to prove that VAT has been paid on the vessel. If it has not been previously paid, it could be due now. The owner believes he has evidence in the form of the original bill of sale, but has not yet located it.

Documentation – Proof of Ownership. No nationally recognised (Maritime and Coastguard Agency MSF4705 or RYA CLG5393) bill of sale present. The owner is attempting to complete a retrospective MSF4705 in liaison with the previous owner. An MSF4705 should also be completed for this purchase.

Other evidence presented was as follows:

- Screenshot of the vessel's insurance certificate showing the name of X covering up to 3/7/21.
- Purchase confirmation email to X dated 1/7/17.
- Rigging invoice addressed to X dated 26/7/19.

6. APPLICABLE REGULATIONS

As a leisure vessel under 13.7m, this Jeanneau is not required to comply with any specific MCA regulations regarding her construction or equipment. The vessel has therefore been assessed by the surveyor using his judgement with due consideration being given to the Maritime & Coastguard Agency (MCA) small commercial vessel regulations i.e. MGN280 and the Blue Code. An overview of pleasure craft regulations can be found at https://www.rya.org.uk/knowledge-advice/regulations/pleasure-craft/Pages/hub.aspx

7. HULL - EXTERNAL

Scope. The external hull was examined by a combination of eye, hand and percussion soundings to identify any defects which may affect structural integrity or watertight integrity.

Limitations. Several layers of anti-fouling were present preventing direct inspection of the gelcoat and GRP structure underneath. The keel was retracted.

Orthophthalic polyester resin, used from 1950 to the early 1990s, was prone to osmosis. When osmosis was 'discovered' in the 1980s, manufacturers started switching to Isophthalic resin which is not prone. Being a 2000 vessel, X should not be susceptible to osmosis. However, the hull was examined for blisters which could indicate its presence. No blistering was observed so it was deemed that osmosis was not present. The hull was percussion sounded at intervals giving a rigid, taught sound throughout indicating the material remains solid.

The hull was of GRP construction with a lifting keel and twin rudders, which enable the vessel to remain upright when taking the ground / drying out.

The hull bottom was finished in blue antifouling; it would require a fresh coat prior to launching.

The ferrous lifting keel was serviceable but had considerable surface corrosion which needs to be addressed in the next season or two. This may require removal of the stub keel.

The stub keel had minor surface corrosion which the owner was in the process of addressing. Fresh sealant had been applied around the stub keel to hull joint.

The topsides were finished in white gelcoat with blue/grey graphics. The gelcoat was faded and would benefit from a machine polish. There were a few minor scrapes and scuffs to the gelcoat and graphics.

An aluminium toe rail was fitted along the gunwhale which featured a rubber insert rubbing strip. The rubbing strip was extruded rubber at the transom. Both were in relatively good condition with some minor scuffs/scrapes.

Some minor surface cracks were present in the gelcoat, notably at the port side of the transom, around the port backstay base and on the cockpit seat infill. These were percussion sounded and appeared solid underneath.

The starboard rudder was damaged at the aft end of the bottom edge. This should be ground back to sound material before applying GRP to restore strength and prevent water ingress.

Defect Summary and Recommendations

Location	Defect	Recommendations
Lifting keel	Surface corrosion	Remove keel, remove/treat rust, apply protective paint scheme
Stbd rudder	GRP breaking away	Repair GRP

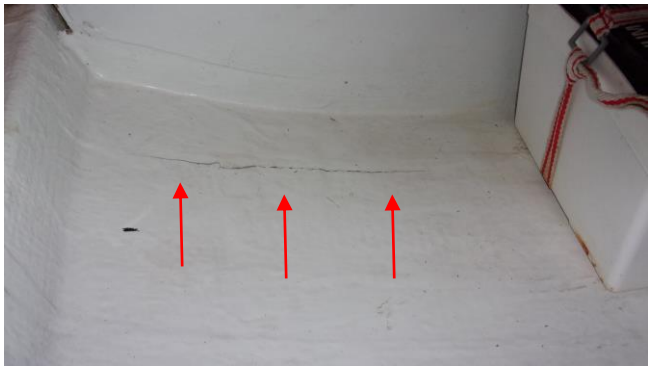
8. HULL - INTERNAL

Scope. The internal hull and its structural components were examined by a combination of eye, hand and tools to identify any defects which may affect structural integrity or watertight integrity.

Limitations. The internal hull skin was examined for blisters which could indicate the presence of osmosis; as no blistering was present it was deemed that osmosis was not present. The internal hull bottom could be viewed under deck boards and lockers, the internal topsides were lined so could not be viewed.

The internal hull was strengthened by beams, frames and dwarf bulkheads. Most of the bilges had been coated in brushable gelcoat with other areas being painted.

Tabbing between the hull and the dwarf bulkhead at the aft cabin door had become detached. While not structural at the time of writing, this should be repaired soon by grinding back to solid material, applying fibreglass/resin and re-finishing in brushable gelcoat.



Defect Summary and Recommendations

Location	Defect	Recommendations
Aft cabin	Hull to bulkhead tabbing breaking away	Grind back to solid material, re-glass and apply gelcoat

9. HULL FITTINGS

Scope. Hull fittings (e.g. anchor/cable, seacocks, skin fittings, shaft brackets, boarding ladders etc) were examined for their security, condition and fitment. Where accessible, the ability to operate the seacock opening/closing mechanism was checked. Seacocks and skin fittings were hammer tested to check their integrity. Keel bolts were tapped with a small hammer to check integrity.

Limitations. Operation of the seacock closing mechanism is no guarantee that the seacock is fully watertight in the closed position.

A stainless steel ladder was bolted to the bathing platform. This was secure and in good condition.

All fittings/seacocks under the waterline or within 300mm of it should have two stainless steel jubilee clips securing hoses to them. All fittings had two clips.

The following table lists the seacocks:

Location	Function	Comments
Galley (port)	Sink drain	Bronze fitting, bronze ball valve, good condition, moved freely
Heads (stbd)	Toilet water inlet	Bronze fitting, bronze ball valve, good condition, moved freely
“”	Toilet water outlet	Bronze fitting, bronze ball valve, good condition, moved freely
“”	Sink drain	Bronze fitting, bronze ball valve, good condition, moved freely
“”	Shower sump outlet	Bronze fitting, bronze ball valve, good condition, moved freely

Engine compartment	Engine cooling inlet	Bronze fitting, bronze ball valve, good condition, moved freely

The stub keel was secured to the hull via six stainless steel studs and ferrous steel nuts which were all in a serviceable condition. The owner had removed the resin overcoat on four of the nuts and removed/replaced one nut for inspection. Rust stains and spider cracks were present at the remaining two encapsulated nuts. It is recommended that the resin be removed from these, the corrosion addressed and all six nuts re-covered in resin.

The engine exhaust skin fitting on the starboard topside (aft) was slightly damaged but serviceable.

Defect Summary and Recommendations

Location	Defect	Recommendations
Saloon	Two keel nuts yet to be serviced	Remove resin, remove corrosion from all 6 nuts, recover in resin

10. RIGGING, DECK AND DECK FITTINGS

Scope. The standing rigging was checked to head height for condition and security. The deck area was walked over to check the stiffness of the deck. Items such as roller reefing systems and winches were checked for condition only. The deck and fittings (e.g. stanchions, guardrails, handrails, fairleads, cleats etc) were checked for their condition and fitment.

Limitations. Standing rigging checked to head height. Safety items such as stanchions, guardrails, guardwires and handrails are fitted primarily to prevent crew from falling overboard. These items were tested by a 82kg surveyor applying simulated loads; this is not scientific and does not offer any guarantee of the load bearing ability of such items.

The owner reported that the mast, boom and standing rigging had been replaced in 2019. This was backed by an invoice from Niall Clarke Rigging dated 26/7/2019 for £7248. It would be worth checking if there is a guarantee against this work and if it is transferable to a new owner.

The Z-Spar mast and boom were in good condition. Standing rigging was 1x19 stainless steel wire and was 5mm diameter at the forestay and cap shrouds, 6mm at the inner shrouds and 4mm at the after stay; all were in good condition. The Frenor SD100 roller reefing system was in good condition. Two Harken two-speed winches were fitted on the coachroof; these were also in good condition.

Running rigging was generally in good condition with the owner reporting that he replaced it on condition rather than age.

Some surface stress cracking was noted in the gelcoat around the port after stay. The area was percussion sounded and appeared solid. An internal inspection of the area was not possible as it was hiding behind the lining in the aft cabin.

The deck and coachroof felt solid underfoot. The guardrails and stanchions were secure and in good condition.

A 25lb galvanised anchor was present in the anchor locker. This was connected to the anchor rode, which consisted of galvanised chain and rope, by a galvanised shackle. The rode was secured to an eye inside the locker. All items were in serviceable condition although some corrosion was present.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

11. SUPERSTRUCTURE

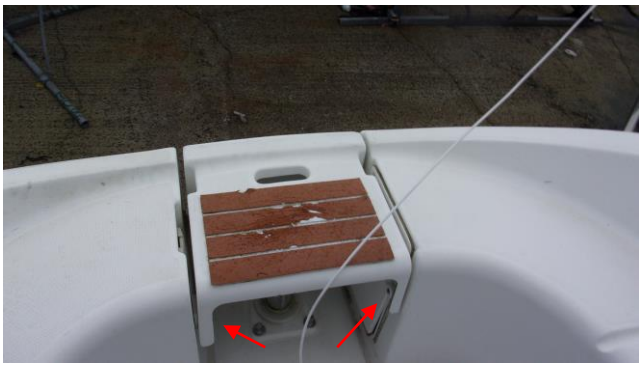
Scope. The superstructure and its fittings (e.g. doors, hatches, windows, portlights etc) were checked for condition and weathertight integrity.

Limitations. Due to the sometimes complex paths by which water can enter a vessel, 'no evidence' of leaks is not a guarantee of the absence water leaks even if the survey takes place on a rainy day.

The superstructure was of GRP construction and fitted with windows, portlights and hatches. Ventilation was provided by a fixed vent in the saloon hatch and the opening hatches, portlights and companionway door.

The hatches and windows were generally in good condition however some UV degradation was noted in the saloon skylight and the heads portlight.

The infill seat, aft in the cockpit, had some surface stress cracking in the gelcoat and the synthetic teak on top was damaged/scratched. The white plastic locating studs (see red arrows below) were loose and should be tightened.



Defect Summary and Recommendations

Location	Defect	Recommendations
Cockpit	Infill seat locating studs loose	Tighten

12. PROPULSION MACHINERY

Engine & Drive Specification. The vessel was fitted with a single diesel engine driving through a gearbox, shaft and P-bracket to a two-bladed right-handed fixed propeller. The engine specification was as follows.

Engine Make	Yanmar	**Gearbox Make**	Kanzaki
Engine Model	2GM20	**Gearbox Model**	KM2P
Performance	13.4kW @ 3600rpm		
Serial No	E05366		

Scope. The engine and drive system were visually inspected for external condition and fitment.

Limitations. No internal inspections, tests or trials have been conducted on the propulsion machinery so its performance cannot be guaranteed.

The engine was securely mounted with no evidence of fuel leaks and evidence of only minor oil weeps. The after engine mounts showed some surface corrosion but were serviceable. The rocker cover cap was removed revealing very clean rocker gear indicating regular oil changes. Access to the oil dipstick was difficult. The dipstick showed the correct oil level and no unwanted deposits. The raw water impeller had been removed by the owner as part of the winterisation routine.

The engine start panel was located on the port cockpit coaming. This featured pressure, temperature and charge warning lights.

The owner reported that a new rubber stern seal had been fitted in 2019. While there was no paperwork to support this, the seal was in very good condition with no evidence of leaks. The cutlass bearing had minimal (normal) play and the propeller was in good condition.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

13. STEERING SYSTEM

Scope. The steering system was visually inspected for external condition and fitment.

Limitations. No internal inspections, tests or trials have been conducted on the steering system so its performance cannot be guaranteed. The majority of the steering components were hidden from view. An overhead and after panel in the aft cabin can be unscrewed to gain access.

The steering system appeared to be by cable to a central pulley (possibly under the emergency steering connection) which then must drive the tiller bar which connects to both rudder stocks. The cables and connection to the pulley and tiller bar were not visible. The starboard end of the tiller bar and connection to the starboard rudder stock were visible through the starboard cockpit locker; nothing was visible on the port side. A small (normal) amount of play was felt at the tiller bar to stock connection.

There was no evidence of leaks from the starboard rudder tube; the port tube was not visible. The weight of the vessel was upon the starboard rudder so bearing play could not be checked. A small (normal) amount of play was present in the port bearing.

Emergency steering was achieved by connecting a handle (retained in the saloon) to a socket under the aft cockpit infill seat.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

14. FUEL SYSTEM

Scope. The fuel system (e.g. tanks, fuel lines, vent lines, fittings etc) was inspected externally for condition and fitment.

Limitations. No internal inspections were made so the condition of internal areas (e.g. inside tanks) cannot be guaranteed. The port, aft and under sides of the fuel tank were not visible so their condition cannot be guaranteed.

A plastic fuel tank was secured via a pair of straps in the starboard cockpit locker. The fuel filling and vent lines connected to the top of the tank; the filling line was marked to the ISO7840 standard, the other hoses were in good condition. The fuel filling point was on the starboard cockpit coaming with the vent led out to the starboard topside.

The engine supply and return lines were connected to the top of the tank; a shut-off valve was present in the fuel supply line adjacent to the tank. Fuel was fed to the engine via a fuel filter located in the engine compartment.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

15. PUMPING AND FLOODING

Scope. The bilge pump (or flood water removal) system was visually inspected for condition, fitment, suction locations and pumping capacity.

Limitations. No dynamic tests were carried out on the system therefore the pumping ability of the system cannot be guaranteed.

General Requirement from MGN280: A vessel should have an efficient bilge pumping system, with suction pipes so arranged that any compartment can be drained. Pump capacities should meet the following minimum requirements:

- ~~10 litres per minute for vessels of 6 metres in length or less~~
- 15 litres per minute for vessels of between 6 and 12 metres in length
- ~~30 litres per minute for vessels of 12 metres in length or greater~~

A Rule 51 lpm electric bilge pump was fitted in the saloon bilges and operated when switched on. The owner stated that this was new and presented the box it was supplied in. The pump discharged through a skin fitting on the starboard aft topside.

A manual bilge pump was located aft in cockpit. This sucked from the engine compartment bilges and discharged through a skin fitting on the starboard aft topside.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

16. FIRE EXTINGUISHING AND ESCAPE

Scope. The condition, serviceability and location of both accommodation and engine compartment extinguishers was checked. The escape routes from each compartment were checked.

Limitations. Serviceability was assumed if the extinguisher was in good external condition, indicated the correct charge and was not date expired. This does not guarantee the operation of the unit; this guarantee remains with the service agent.

General Fire Extinguishing from MGN280: Vessels less than 15m carrying less than 15 persons should have a minimum of 2 portable fire extinguishers with a combined rating of at least 13A/113B with an extinguisher placed at each exit from accommodation spaces to the open deck. No extinguisher should be rated less than 5A/34B. Extinguishers must clearly display either the date of the last inspection or the date by which the next inspection is due (normally every 5 years) and they should be to a recognised standard e.g. BS EN 3.

Three portable fire extinguishers were present; one in the fore cabin, one in the saloon, one in the aft cabin. All were due a 5-yearly inspection however, it may be more cost effective to replace them.

Machinery Space Extinguishing from MGN280: May consist of a portable extinguisher suitably sized for the space being protected and arranged to discharge into that space, or one of the multi-purpose fire extinguishers required in the paragraph above can also be the extinguisher required for discharge into the engine space, providing it is a suitable type (B) and suitably sized and stowed in a location appropriate to its dual use. When a fixed fire extinguishing system (which is not a portable extinguisher) is installed in a machinery space, it should be a MCA or equivalent approved type appropriate to the space to be protected and be installed and maintained in accordance with the manufacturer's requirements.

There was no fixed system in the engine compartment therefore a suitably sized portable extinguisher should provide protection. It is recommended that either the saloon or aft cabin portable extinguisher be increased in size from 1kg to at least 2kg to better serve its dual purpose.

Escape. Each compartment with sleeping berths should ideally have more than one escape route. The aft cabin has only one escape route so it is particularly important to have a serviceable, in-date extinguisher located within.

Fire blanket – one was present but not mounted. It should be mounted in appropriate location.

Smoke alarm – none fitted. Recommend one be fitted in the saloon.

Defect Summary and Recommendations

Location	Defect	Recommendations
Fwd/Aft cabin and saloon	Fire extinguishers due a service	Service or replace
Engine compartment	No fixed extinguisher	Replace either the aft cabin or saloon extinguishers with a larger version
Fire blanket	Not mounted	Mount
Smoke alarm	None present	Fit smoke alarm

17. HEATING, COOKING, GALLEY & LPG

Scope. The heating system, cooking equipment and their fuel systems where applicable (e.g. diesel or LPG pipes/hoses/connectors/tanks/bottles etc) were examined externally for condition and fitment. The presence of associated safety items (e.g. fire blankets, smoke alarms, carbon monoxide alarms, gas alarms etc) was checked.

Limitations. The LPG pipework could not be inspected throughout its entire length due to running behind linings on the port side therefore its condition cannot be guaranteed. The LPG system was not subject to any tests therefore its performance and integrity cannot be guaranteed.

LPG Requirements

Coastal leisure vessels are not required to comply with any particular LPG regulations but would be strongly advised to meet the **commercial requirements** at http://solasv.mcga.gov.uk/m_notice/mgn/mgn280.pdf

All vessels – periodic testing of the LPG system should be conducted by a competent engineer. This is outside of the scope of the survey however, the following observations safety were made:

The LPG locker was located aft in the cockpit. It was correctly arranged with the cylinder being secured by the locker door. The regulator sat atop the cylinder and was in good condition. The hose was dated 2000 and, although in a serviceable condition with proper terminals, it was 20 years old. It would be prudent to replace the hose during the coming season.

LPG was fed via copper pipe to the galley; an isolator for the cooker was present inside the wardrobe in the aft cabin.

A SMEV oven/grill and two hob cooker was fitted in the galley. It was in good condition. All burners were lit and remained lit upon release of the cut-out solenoid knob.

Carbon monoxide (CO) detectors should be fitted in each area with an open fuel burning appliance. None were fitted.

A top loading fridge was fitted in the galley. The Frigomatic Roma 35F refrigeration unit was located under the port saloon seat. The compressor ran and the evaporator plate became cold when switched on.

Defect Summary and Recommendations

Location	Defect	Recommendations
LPG cylinder locker	Hose aged	Replace next 12 months
Saloon	Open flame appliance, no CO alarm	Fit CO alarm

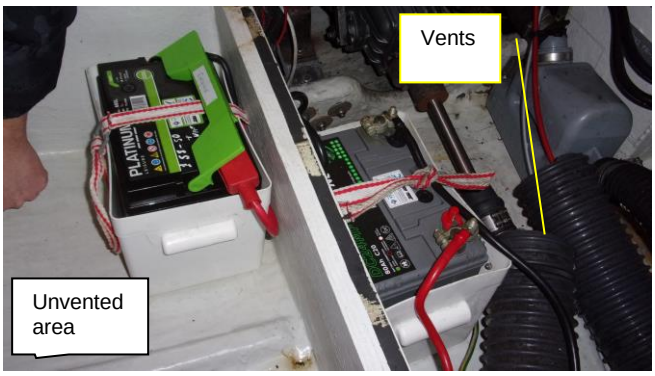
18. DC ELECTRICAL

Scope. The DC electrical system was checked for the presence of general circuit protection devices, general condition and fitment.

Limitations. No electrical or system testing was conducted and, with the complex wiring looms installed on vessels, it is not possible to check every wire, connection, fitting or device. The performance of the DC system cannot be guaranteed.

Battery Requirements. Batteries must be restrained to limit movement to a maximum of 1cm and terminals (or at least the positive terminal) must be protected to prevent dropped tools etc causing a short circuit. Gas ejected by batteries when charging must be vented external to the accommodation areas.

Two batteries were present under the aft cabin berth. The battery labelled ‘engine’ (green handle – Type 685L 75AH) was a venting battery but was not in a vented area. Either vent the battery into the engine compartment or replace it with a sealed battery. Note there were two vent holes on the battery, so either fit elbows and tubing to each end or plug one end.



The grey battery (Type DC24MF 80AH) was missing protection for the positive terminal. Either a terminal protector or battery box cover should be fitted.

Both batteries were secure, in good condition and showed ‘green’ on the health indicator.

Battery isolators were fitted adjacent to the batteries marked ‘Batt’ and ‘Start’. A DC fuse/switch panel was located on the starboard side of the saloon. The interior lights and navigation lights were switched on; all lamps illuminated.

Defect Summary and Recommendations

Location	Defect	Recommendations
Aft cabin	Green battery not correctly vented	Vent into engine compartment or replace with a sealed battery
Aft cabin	Grey battery missing protection for positive terminal	Fit terminal protector or battery box lid

19. AC ELECTRICAL

Scope. The AC electrical system was checked for the presence of general circuit protection devices, general condition and fitment.

Limitations. No electrical or system testing was conducted and, as it is not possible to check every wire, connection, fitting or device, the performance of the AC system cannot be guaranteed.

AC System Protection. A consumer unit should be fitted to the AC systems as close as possible to the shore power connection to protect the circuits and the ‘crew’.

The shore power connection was located in the starboard cockpit locker. A consumer unit consisting of a breaker and trip was located behind the DC switch fuse panel. The only hard wired AC consumer found was the Nemo 12 dual-output battery charger which was located under the chart table.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

20. CATHODIC PROTECTION

Scope. The presence and condition of sacrificial or electrical anodes and other cathodic protection devices (e.g. galvanic isolators) was checked.

Limitations. Electric current protection devices and galvanic isolators are often hidden from view; they may be fitted but not located by the surveyor.

A single sacrificial anode was fitted to the hull bottom to starboard of the propeller shaft. It had around 80% material remaining.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

21. WATER SYSTEMS

Scope. The fresh (cold and/or hot), grey (sink and shower drain) and black (sewage) water systems were inspected for condition and fitment.

Limitations. Systems hoses could not be checked where they ran from tank to pump along the port side so their condition cannot be guaranteed.

Fresh Water System

The owner had removed the flexible water tank from under the forward cabin berth due to a leak. A new, boxed flexible tank was present but not fitted. Flexible tanks should be restrained from movement in the same way as rigid tanks, so a strap or securing bar will be required.

A Jabso Par-Mate water pump and 1L accumulator were fitted behind the seating on the port side of the saloon. The water pump operated when switched on.

No hot water system was present.

Grey Water System

Sinks drained directly overboard via sea cocks. A manual ‘bilge’ pump was fitted in the heads which sucked grey water from the shower sump and discharged it overboard via a seacock.

Black Water System

A Jabso marine toilet was fitted in the heads compartment. This was fed seawater via a seacock and discharged overboard via a seacock.

Defect Summary and Recommendations

Location	Defect	Recommendations
Fwd cabin	No water tank fitted	Fit water tank

22. ELECTRONIC EQUIPMENT

Scope. The electronics used for vessel operations (e.g. GPS, chartplotter, radar, depth sounder, VHF etc) were switch tested.

Limitations. Electronics were tested where they were readily visible and power was supplied to the unit. The switch test only proved that the equipment powered up; this does not guarantee that the unit is performing correctly.

The following equipment was fitted:

Equipment	Comments
Raytheon RC420 chartplotter	Fitted in saloon
Garmin Echomap CV chartplotter	Mount at helm, can be removed
Simrad DT1200 VHF	Fitted in saloon

Horizon 135 compass (magnetic)	Fitted at helm
Raytheon ST4000+ Auto-pilot	Panel at helm. System previously fitted but removed by owner
Raytheon ST60 Tridata	Fitted at helm. Speed/depth/timer
Rraytheon ST60 Multi	Fitted at helm. Volts/heading/sea temp

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

23. INSTRUMENTATION

Scope. Instruments providing information on systems (e.g. engine instrument panel, tank levels, battery meters) were switch tested.

Limitations. Instruments were checked for operation where they were readily visible and power was supplied. The switch test only proved that the instrument provided a reading; this does not guarantee the accuracy of the reading.

Fuel and water tanks were not fitted with sender units; the tanks must be directly inspected to determine liquid levels.

The engine featured a control panel with warning lights; no engine instruments were fitted.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

24. SEA SURVIVAL EQUIPMENT

Scope. The external condition and serviceability of sea survival equipment (e.g. life raft, EPIRB, SART, life rings) was checked.

Limitations. Serviceability was assumed if the equipment was in good external condition, was not date expired and, where applicable, the test button operated producing an expected result. This does not guarantee the internal condition or operation of the unit; this guarantee remains with the service agent.

A horseshoe lifering and lifebuoy light were present but not mounted. These need to be mounted correctly before taking the vessel to sea.

Defect Summary and Recommendations

Location	Defect	Recommendations
Nil	Nil	Nil

25. SUMMARY

The vessel was in very good overall condition for her age. The hull was sound with no evidence of osmosis. Minor repairs are required to the starboard rudder and the keel needs some work to address the corrosion in the coming seasons. The mast, boom and rigging were renewed in 2019. Key safety items to address are fire extinguishers, smoke alarm, CO alarm and the engine battery venting. Addressing the corrosion on the keel could be relatively costly as the stub keel may have to be removed. The remaining defects will be relatively inexpensive to action.

Annex:

A. Defect Summary and Recommendations.

M J McCrea

ANNEX A to
REPORT NO 20/20
Dated 9 Dec 20

DEFECT SUMMARY AND RECOMMENDATIONS

Defect No.	System	Location	Defect	Recommendations
1	Paperwork	N/A	Limited evidence of ownership	Obtain MSF4705 transferring vessel to X
2	Paperwork	N/A	No proof that VAT has been paid	Obtain original bill of sale showing VAT paid
3	Hull external	Lifting keel	Surface corrosion	Remove keel, remove/treat rust, apply protective paint scheme
4	Hull external	Stbd rudder	GRP breaking away	Repair GRP
5	Hull internal	Aft cabin	Hull to bulkhead tabbing breaking away	Grind back to solid material, re-glass and apply gelcoat
6	Hull fittings	Saloon	Two keel nuts yet to be serviced	Remove resin, remove corrosion from all 6 nuts, recover in resin
7	Deck fittings	Cockpit	Infill seat locating studs loose	Tighten
8	Fire	Fwd/Aft cabin and saloon	Fire extinguishers due a service	Service or replace
9	Fire	Engine compartment	No fixed extinguisher	Replace either the aft cabin or saloon extinguishers with a larger version
10	Fire	Fire blanket	Not mounted	Mount
11	Fire	Smoke alarm	None present	Fit smoke alarm
12	LPG	LPG cylinder locker	Hose aged	Replace next 12 months
13	LPG	Saloon	Open flame appliance, no CO alarm	Fit CO alarm
14	DC	Aft cabin	Green battery not correctly vented	Vent into engine compartment or replace with a sealed battery
15	DC	Aft cabin	Grey battery missing protection for positive terminal	Fit terminal protector or battery box lid
16	Water	Fwd cabin	No water tank fitted	Fit water tank