

S1242 – Pre-purchase full condition survey report on:

Jeanneau Sun Fast 37 [REDACTED]



For [REDACTED]

Surveyed at [REDACTED]

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Condition Survey Report on Yacht [REDACTED]

This survey was carried out on the instructions of:



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1) General notes.

a) Responsibility

Any responsibility is to the above client only and their insurers, and not to any subsequent owner of the vessel under survey or holder of this report. Copyright is retained by Medusa Marine and copies must not be made or distributed except to the vessels insurers or repairers without permission of the copyright holder.

b) Location

The vessel was laid up ashore at [REDACTED]

c) Purpose and scope of survey

This survey was carried out under Medusa Marine standard terms and conditions. These are available on our website:

<http://medusamarine.co.uk/index.php/terms-and-conditions/>

The survey was commissioned by the purchaser for the purpose of establishing the condition of the vessel for insurance purposes. Unless otherwise stated, the vessel was not surveyed for compliance with any build standards (RCD) or operational codes of practice or local licenses. The vessel has also not been surveyed for suitability for any particular purpose or location. This survey report is a factual statement of the surveyor's examination as carried out and his opinion given in good faith as to the relevance of disclosed facts and defects so far as seen. It implies no guarantee against faulty design or latent defects.

d) Limitations

Areas inspected were limited to openings and access available during normal operations and maintenance of the vessel. No fastenings or skin fittings were removed, keel bolts drawn or joinery or head linings removed. Closed compartments were visually inspected by means of a snake camera. Materials used in the construction were tested as far as was possible by industry standard Non Destructive Test (NDT) test equipment.

Unless the vessel was afloat, the mechanical condition of the engine was not covered by survey, only the installation and components normally available to routine maintenance could be assessed. If afloat, only assessment of the engines no load running condition was possible without a full sea trial. Surfaces coated with layers of paint cannot be examined for damage which is only evident on the substrate beneath the paint coat. Sails where present, were examined for general condition. no assessment of fit, shape or stretch could be made. Spars and rigging, where stepped, could only be examined visually from deck and ashore. All these limitations are subject to an assessment of what is reasonable and practicable due to the condition and location of the vessel under survey.

Navigational equipment, electrical installations and domestic appliances were assessed subject to battery charge or shore power if available. If there was no opportunity for sea trialling the vessel, no assessment of the vessel and her equipment under seaway conditions was possible. No opinion could be made or responsibility undertaken for condition or defect of those aspects of the vessel not accessible or evident due to the above limitations

.e) Recommendations

Recommendations have been subdivided into three categories. All recommendations are annotated thus and are summarised at the end of the report

Category 1 (Cat 1) are safety related defects which should be corrected before the vessel is put into commission.

Category 2 (Cat 2) recommendations relate to defects which affect the operation of the vessel in normal use and should be attended to at the earliest opportunity. They do not however, affect the safe operation of the vessel.

Category 3 (Cat 3) recommendations relate to conditions which are cosmetic or may affect the perceived value of the vessel and could be attended to at the owners discretion

2) The Vessel specifications and description

Note: Dimensions and measurements given have been derived from manufacturers published data, and have not been verified by survey

LOA:	11.40 metres
LWL:	9.60 metres
Beam:	3.70 metres
Draft:	2.07 metres
Displacement: (light)	6.250 tonnes
Ballast:	2.040 tonnes
Manufacturer:	Chantier Jeanneau SA, Les Herbiers, France
Model or Type:	Sun Fast 37
Year of Build:	[REDACTED]
HIN No:	[REDACTED]
MMSI No:	[REDACTED]
Registration:	[REDACTED]
Designer:	Jacques Fauroux
Construction:	GRP hull and deck
Engines:	1 x Yanmar 3YM30AE
Main sail area	27.44 sq metres
Head sail area	31.30 sq metres

This vessel was built after the 16th June 1998 and therefore is subject to the requirements of the Recreational Craft Regulations (SI 1996/1353). It was built before the 2005 (Directive 2003/44/EC) which included environmental emission limits.

Vessels that were built before 1st January 1985 and within the EU prior to 1992 are considered VAT paid. This boat was built in the EU after both those dates. Proof of VAT paid status should be obtained prior to completion and a copy kept on board if voyaging to continental Europe.

This vessel displays a UK Flag (part one) registration. This is a full UK registration which does provide proof of ownership. Registration is transferable and a certificate of deletion must be obtained if registering the vessels on another register. A vessel cannot be on two registers at the same time.

The Jeanneau Sun Fast 37 is the performance version of the cruising Sun Odyssey 37 with a deeper fin keel and a taller rig. The cruising spec version was also marketed as the Moorings 37 for the charter market. All three versions were available with two accommodation lay outs giving the option of two or three double sleeping cabins.

The two cabin versions had a larger heads compartment with separate shower stall and a deeper cockpit locker. Deck layouts were the same except for some upgraded deck gear for the performance Sun Fast 37. The hull/deck combination across the three models was one of the most successful for Jeanneau with one of the longest production runs spanning 1998 til 2005.

The hull form of the 37 looks similar to other modern production boats of the same period with a moderately raked stem, minimal overhangs, little flare or tumblehome, and a retrouseé transom. The generous beam is carried well aft with a flat sheerline and a rakish semi flushed in coachroof.

Underwater, the canoe body features a shallow forefoot and flat underbody sections which will lead to some slamming upwind in a seaway. The deep draft fin and bulb keel is epoxy-coated lead with a modest ballast ratio of 32.6%, however, the low centre of gravity with a bulb foot to the keel will give a good metacentric height and fairly stiff righting moment.

[REDACTED] is a [REDACTED] built three cabin version of the Sun Fast 37, with the layout optimised for a large cruising crew or for charter. The first owners were Sunsail of Portsmouth. There are two generous aft double cabins, a double forepeak, a saloon dinette and a settee berth. The specification gives berths for nine which includes the saloon dinette to starboard converting to another double berth.

The forward cabin has a double V berth and a hanging locker to starboard. To port is additional storage. The main saloon has a table on pedestal legs with a U shaped dinette seating. The table can be lowered to form the double berth with infill cushions.

The galley is on the aft starboard saloon side with generous worktops and large double sinks. Opposite is the navigation station with a small sized chart and a dedicated seat. This can be converted to a single berth with an infill for the foot well. Aft of this is a heads and shower compartment. This is designed as a wet room with a wet locker aft and a sump pump out in the sole.

The engine compartment is under the companionway steps with access covers in the aft cabins for good access to the engine. The aft cabins have double berths with a dividing bulkhead on the centreline. There is a hanging locker to each cabin.

Above the aft cabins is the cockpit. This has seating in a U with a walk round steering pedestal and a removable step through transom to the sugar scoop. There are shallow cockpit lockers both sides above the aft cabins, and a cavernous full depth locker to the starboard transom. The port transom incorporates a dedicated gas locker.

The rig is a deck stepped 9/10th fractional sloop rig with double swept spreaders. There are continuous cap and upper diagonal shrouds, and lower diagonal shrouds. Stays are a single forestay and a single standing backstay with a bridle. Sails are a single furling foresail and a three reefed mainsail.

3) Survey details

a) Hull general

Hull construction is of solid skin glass reinforced plastic (GRP) laminates of woven rovings (WR) and chopped strand mat (CSM) bonded with polyester resins. The actual construction is quite light at just 6 ¼ tonnes for her length and beam but the construction includes laminations of Kevlar for stiffness and strength.

Kevlar is a para-aramid synthetic polymer with many times the strength of glass or steel. The hull strength and stiffness is enhanced below the waterline by a substantial matrix of longitudinal stringers and transverse floors moulded to the hull internally and the whole is considered to be of sound design and manufacture

This hull would have been built long after the problems associated with moisture absorption into permeable resins and laminates were fully understood. The actual resins used in the construction could not be determined within the limits of non-destructive testing.

At the time of build common practise was to use isophthalic resins for the gel coats and the first laminations with powder bound CSM. This was followed up by orthophthalic resins with alternating layers of CSM and WR cloth reinforcements. The Kevlar bi-axial cloth would be used in place of WR within these secondary layers.

b) Bottom and keel

The bottom is finished with black anti-fouling paint which was well adhered. It appeared to have a fairly smooth surface and proved to be a multiple coating over previous layers of eroded paint. The hull was sounded all over with a small pin hammer and was found to be free of delamination or voids.

There is one small defect at the forefoot on the starboard side. This appears to be a break out of an air pocket behind the gelcoat. This is through to the laminates and the pocket is filled with antifouling paint. This should be properly repaired with a thickened epoxy after removing the paint.

Recommendation

(Cat 3) Clean out and fill the air pocket with thickened epoxy.

The hull bottom was also moisture tested. Some antifouling paints with high metallic components can affect moisture readings. The antifouling extended about 10 cms above the waterline, so readings were taken for reference on the topsides and through the antifoul above the waterline and the differences were negligible.

This indicated that the antifouling paint itself was only having a slight effect on the moisture readings, so initially no areas were scraped back to gel coat. Where this can be avoided it is beneficial in preventing any damage to any preventative underlying coatings such as epoxy treatments.

Moisture readings were taken with a Sovereign Quantum Marine Moisture meter. This meter is a capacitance type tester and is equipped with both deep and shallow reading scales. This is useful to trace the depth of penetration of, and correspondingly the drying out of moisture. All polyester laminates will absorb some moisture to a degree without it effecting the structure or strength of the construction.

The two scales can also be used to establish the depth of moisture within the laminates and consequently the stage of drying out. The comparative scale is 0 to 100, which is an arbitrary scale, and does not represent actual percentages of moisture in GRP. Figures are thus quoted as scale readings and not as percentages.

Representative readings on a Sovereign Quantum comparative scale for moisture content in GRP laminates approximate as follows:

- 0-15 Regular readings for a 'dry' GRP laminate
- 16-20 Slight absorption typical of permeability of weather exposed GRP
- 20-30 Medium moisture content, could be osmotic but unlikely to blister
- 31-45 High moisture, osmotic process but not necessarily physical effects
- 46-60 Very high, usually physical effects, blistering and wicking evident
- 61-100 Extreme saturation moisture with visible structural defects

The atmospheric conditions at the time of survey were as follows:

Weather:	Cloud with occasional sunshine
Wind:	NW 27 to 31 kts
Air temperature:	17.5°C
Hull surface temperature:	19.2°C (stbd) 17.6°C (port)
Relative Humidity:	35.6%
Dew point:	2.1°
Hull temp over dewpoint	+ 17.1°C to + 15.4°C

It is usually considered necessary for the hull temperature to be at least 5° above the dew point for moisture readings to be representative.

Readings were taken in the topsides and showed a consistent level of 12 on the shallow scale. Readings were taken in the antifoul above the waterline and showed readings of 13 on the shallow scale. The antifoul coatings were having an average 1 point influence on the moisture readings. The readings can be discounted by that figure for approximate levels.

The area immediately below the waterline showed average shallow scale readings of 15 and deep scale 13. These readings increased relatively toward the keel resulting in final scale readings of 21 shallow and 17 deep. The highest readings were seen just forward of the keel where the transducers were located. The readings may be responding to water collected in the bilge when removing the log impeller for cleaning.

Overall the hull bottom is considered to have an acceptable and natural level of water absorption throughout the laminations. There is a possibility that some moisture may be of very low level osmotic absorption, but at too low a level to cause any defect.

The general condition of the hull bottom is good and a regular routine of laying up on hard standing for a couple of months every season should prevent any chance of the hull suffering any physical degradation. This preventative routine is good practise for a hull of any age. (See *explanatory note 1*)

The keel is a lead casting of a foil shaped appendage with an integral cast bulb at the foot. This casting is generally good with no sign of corrosion although there is some superficial damage to the underside at the after end. There is no visible line in the antifoul coating at the landing seam indicating that there has been no significant degree of movement between the hull and the keel.

The keel is fastened by 1" and ¾" diameter stainless steel studs secured by mild steel full nuts and U shaped plates. These are spanned either side of moulded transverse keel floors which are inverted heavy walled U sections of GRP laminated to the hull bottom. These fastenings show some evidence that the keel has been removed at some point.

The backing plates are set on bonding paste which is over the original flo-coat. The whole assembly is usually flo-coated over after assembly. There is some light surface corrosion to the nuts and plates which is a trivial defect and does not affect the integrity of the structure at the present degree.

The compression post is stood onto an intercostal member moulded in the same way as the transverse floors. This spans the first keel floor and the main bulkhead floor forward. The bulkhead is laminated to the floor and flo-coated over. There is no break in the flo-coat paint film indicating that there has been no evidential movement. The intercostal member is sound and there is no stress crazing in any of the surrounding structure.

c) Topsides

The topsides are constructed of solid GRP laminates with white coloured gel coat finish. There is a double black boot top stripe with a vinyl tape. This tape has been recently applied to cover some abrasions beneath which show in the surface. It is also slightly damaged in a few places. There is a single cove line stripe in black vinyl with the vessels name as a vinyl graphic on the quarters.

The hull is fair with some distinct distortion visible from the bonded in internal structures such as the chain plate ring frame. These are not unusual and are not defects. They are due to the hull being demoulded before the resins are fully cured. There is negligible damage evident with some scuffs at the stem and on the fendering around the transom edge.

There are witness marks of a past repair to the stem. Either side there is a slight shadowing where new gel coat has been blended into the old. The inside of the stem cannot be accessed as the anchor locker is a separate moulding as part of the deck mould. There are some small bonded grommets to allow access to the forestay chainplate fasteners.

The forward part of the anchor locker moulding is finished in a brush painted gelcoat. This suggests that the moulding has been re-worked, possibly with a section removed to give access inside the stem in order to inspect or to carry out repair. The anchor locker moulding is not a highly visible area so the gelcoats have not been faired and polished back to an original finish.

Structural repairs to GRP are perfectly capable of re-instating original structure and strength provided they are repaired from both sides. The removal of the anchor locker moulding would appear to demonstrate that the repair has been carried out to a good structural and cosmetic standard.

The topsides were tested with a Barcol Impresser. This tests the hardness of the laminate and so in theory establishes the consolidation of the lay-up and the level of cure of the resins. These readings can vary so up to 30 readings were taken around the hull and they were seen to range between 44 Hba and 47 HBa.

These average out well above the normal range, 38 to 40 Hba are considered satisfactory for marine grade isothalic/orthothalic resins. The Impresser was calibrated before and after testing with check samples and found to be accurate. These readings were ideal and would be seen as evidence that the hull lay-up was well consolidated and at a good level of cure.

The hardness and cure state of the gel coat is tested with a Shore D Durometer. This test will also show any progressive softening due to oxidisation. Readings ranging from 92.5 to 94.0 HSD were made, which are good as 88 to 90 HSD is considered normal. Overall the tests show a well specified and well executed hull construction.

These good high readings indicate that a high gloss level could be achieved when polished. When polishing the hull, always use polishes containing PTFE. These will provide the same UV protection as silicones, but they do not have the propensity to migrate and cause subsequent refinishing and embrittlement problems. (*See explanatory note 2*)

Recommendation

(Cat 3) Protect the topsides gel coat from any degradation using polishes containing PTFE compounds.

d) Hull to deck seam

The hull has been moulded in a split mould and the hull to deck seam is achieved by the hull moulding having a moulded inward facing flange. The deck moulding is then landed onto this flange with sealant and through fastened by the screws which secure the toe rail in place. The external joint is covered by the extruded aluminium toe rail.

This joint is visible in the aft lockers. The joint has not been laminated over internally but examination did not reveal any signs of movement or leakage in the joint where it was visible. The seam is carried then round the lower edge of the transom where it is capped by a rigid PVC extrusion. This was sound but abraded at the edges as is usually seen in this relatively soft material.

It is evident that the deck was fully assembled with all the deck furniture fitted before the deck was installed. The hull flange has had rebates cut out to provide clearance for the fastenings for the mooring cleats etc. The only mechanical fastenings through the seam are the screws for the toe rail and the bolts for the stanchions.

This is a common practise among volume boat manufacturers where the deck and hull are manufactured on separate production lines and are joined in the final assembly process. By this method there is no access for subsequent fastening or bonding as the joint is hidden behind already installed joinery.

This method of assembly is adequate in normal use, and has been proven so by the thousands of boats manufactured worldwide by this method. It is however vulnerable should the joint receive a substantial impact and if such should happen it is important that the damage is thoroughly examined internally for splitting, opening up or leakage. This may necessitate the removal of internal joinery.

The aluminium toe rail is stressed as it is pulled round the curve of the hull. It is not continuous as there is a break where the midships fairleads are fitted. The stress has allowed the toe rail to spring away slightly at the fairlead. This is most marked at the port side forward although it does not appear to have an effect on the secure bonding of the joint.

e) Deck

The deck is constructed from solid and end grain balsa cored GRP laminates. The deck is moulded with a pyramidal non-slip texture which is in good condition and little sign of chipping of the raised profile. The deck laminate moisture tested and was sounded by pin hammer where possible.

Moisture readings were taken with a Tramex Skipper Plus Marine Moisture meter. This meter is also a capacitance type tester but is preferable to the Sovereign Quantum in this application as it has wider spaced sensors and can read deeper through thick cored decks.

Representative readings on a Tramex Skipper Plus are different to the Sovereign Quantum and the comparative scale for moisture content in GRP laminates approximate as follows:

- 0-15 Regular readings for a 'dry' GRP laminate
- 16-38 Slight absorption typical of permeability of weather exposed GRP
- 39-65 Medium moisture content, could be osmotic but unlikely to blister
- 66-100 High moisture with a possibility of physical degradation at higher ranges

Readings of 25 to 45 were recorded over the majority of the deck with slight elevation to around some deck fittings. Particular attention was paid to areas where the chain plates were bolted through the deck. The higher density and multiple glue lines of plywood packing, used where there are compressive fasteners, will cause the slightly higher readings around deck fittings.

There was one area of even higher readings, over 70, in the port side deck alongside the genoa tracks. This is often seen as a consequence of stress loadings causing the fitting to spring its fastenings enough to allow some moisture to enter the core.

The deck at this point was hammer sounded and seen to be well bonded to the core. The readings did not suggest saturation of the core and therefore unlikely to suffer decomposition and de-bonding of the deck skins. It is not practical to do any rectification to what is currently a minor defect.

At the bows there is a large anchor locker which has a hinging GRP lid with a cut out to allow for the installation of an anchor windlass, this is detailed elsewhere. The deck also has a trough for an anchor shank when stowed on the stemhead. The anchor locker drains through a skin fitting in the starboard topsides. All was in good order although there is some chipping to the gel coat surrounding.

f) Superstructure and cockpit

The coachroof superstructure and cockpit are all integral with the deck moulding. The coachroof top features the same non-slip moulded texture as the deck and is also in good condition with no sign of chipping of the raised profiles.

The coachroof is semi flush at the forward end where it blends into the deck. Set upon the after end of the coachroof are two teak rails under which the hatch slides. The hatch runs on rubber seals in moulded drainage channels which divert any water running off the hatch into the cockpit.

The coachroof was also tested for moisture and showed satisfactory general readings. This was particularly around the mast partners which is often a problem area. The cockpit seat tops have been laid with teak planks with a polysulphide caulking. There are no teak margins which indicate that this deck is a 'kit' deck where the teak has been pre made in sheets bonded to a thin plywood or epoxy scrim substrate and cut to profile.

These are in a good condition with the teak having suffered from only a little erosion and the surface has been oiled to protect and maintain colour. Pressure washing should be avoided as it will shorten the life of the deck considerably. The step through transom and sugar scoop have been re-laid with a PVC teak effect decking to match. This is possibly because the original decking was badly eroded needing replacement (*See explanatory note 3*)

The cockpit sole is also finished in the same non-slip profile. There are four lockers within the cockpit seating. The main port and starboard lockers are shallow as they are above the aft cabins and provide for general stowage of warps and fenders. The port hand locker also contains the emergency tiller as detailed later.

The lids to all these lockers are hinged and are without stays. Lanyards with plastic hooks are provided to secure them open. The lids are secure and the lanyard system works satisfactorily. The hatch latches are piston latches which engage into hasps. The latches are prone to damage when slammed shut and spares are available from larger chandlers.

Abaft the helm is a helmsman's seat which is a separate moulding which lifts up and down to allow access to the boarding steps aft. This moulding is not hinged or tethered and is liable to get lost overboard. Under the seat is access to the top of the rudder stock and provision for fitting the emergency steering tiller.

The steering system is accessed through the full depth starboard aft cockpit locker. This also provides access to the heater and the shore power input socket and consumer unit. The port aft cockpit locker is dedicated to the gas bottle storage. All these services are detailed elsewhere.

On the top of the coachroof is a moulded plinth and a cast alloy mast partner with a rubber gaiter. The mast is located at the partner casting by wedges and the casting carries the blocks for halyards and reefing lines. These are led aft either side of the main companionway.

g) Hatches & Companionways

The companionway is closed by a sliding hatch and a washboard. The hatch is in 10mm flat sheet of tinted acrylic with a bonded teak hardwood flange at the after edge as a hand rail. This is in good condition and the acrylic is unweathered and the hatch slides easily.

The washboard is also a single large flat sheet of acrylic and locates under the hatch flange at the top and closes with a sash lock which engages into a slot in the sliding hatch. This is all in good condition and is well fitting and secure. This is probably not original as it does not have ventilation slots.

On top of the coachroof, forward of the mast is a square aluminium framed hatch manufactured by Gebo. This hatch is hinged on the forward edge. This is ideal as it prevents a breaking wave from flooding the forepeak if the hatch is not fully closed. There is also a possibility of the hatch being carried away in a storm. This hatch would have been reversed from its original position to comply with the SCV code of practice.

This forward hatch provides light and ventilation to the forepeak and appears to be fairly watertight with no signs of leaks or water tracking. The upholstery beneath was dry to the touch despite recent rain. The acrylic is good with only a little crazing evident that would not make it unsafe to walk on. The hatch should be kept closed at sea.

Aft of the mast is a similar hatch also by Gebo, which is also hinged at the forward edge although this hatch is not in as vulnerable a position. This is in similar good condition with no signs of leakage as the saloon table beneath is relatively unmarked.

Both hatches have roller blinds installed in the frames beneath which are in good working condition. Both hatches also have Goyot dorade type ventilator installed in the acrylic panel. This kind of ventilator can leak if installed significantly inclined from the horizontal, but the forward one, although inclined, appears to be watertight.

The forward hatch is considered to be usable as an emergency escape hatch as there is also a firm foothold in the bunk base beneath. These hatches have a central lock and vent lever. They should not be locked when at sea as it is also a requirement that they can be opened from outside in an emergency.

h) Windows and ventilators

There are eight windows in the coachroof, four each side equally disposed around the coachroof. The aft most two each side are inward opening portlights by Gebo. The glazing is in acrylic and is lightly crazed but undamaged. The alloy frames are anodised and in good condition. Similar windows are also installed in the cockpit sides giving light to the aft cabins.

The forward two windows are fixed moulded acrylic lenses and styled to the shape of the coachroof. These are surface bonded over apertures within the coachroof sides. These were checked for condition and the bonding appeared to be secure and intact over its area. There is no additional ventilation to the saloon, other than the opening portlights and the Goyot dorade ventilator to the hatches. The original washboard would have had ventilation slots fitted.

i) Deck gear and fittings

A pair of stainless steel T bar sheet tracks by Harken is mounted on the outside edge of the coachroof. Each carries a stand up sheet block with an alloy sheave for sheeting the genoa. These blocks slide on cars and are limited in their aft movement by a four part purchase led back to the cockpit for adjustment.

The cars slide well and are in good functional condition. There are no grooves starting in the rollers. When grooves form the sheaves cease to rotate and the resulting friction on the sheet will damage and weaken the rope. The cars and sheaves are in good working condition.

A second pair of tracks for number 3 or 4, or a storm jib is mounted on the coachroof inside the shrouds. Each would carry a stand up sheet block with a plastic sheave set on cars which are limited in their movement by spring loaded pins. The car for the port track is missing and also is its end stop. The car on the starboard track has a broken stop pin. These should be repaired so that the storm jib can be sheeted.

Recommendation

(Cat 2) Repair or replace the cars to the inner sheet tracks.

A pair of cast alloy mooring cleats is mounted on the deck either side at the bows. There is a second pair on the aft quarters. All are well secured and in good condition. There are fairleads associated with them on the ends of the toe rails. There are also two pairs of fairleads set into the toe rails amidships but no corresponding cleats. All the cast alloy deck fittings are anodised.

The fabricated stainless steel stemhead fitting incorporates a single bow roller which is profiled for warp. This is set on the starboard side of the forestay chainplate. The chainplate is a 10mm thick stainless steel strap fastened through the stem. This is well secured by four through bolts and free of evident movement externally. The fasteners internally could not be seen.

The mast partner casting has 8 stand up blocks which feed the halyards and reefing lines back to the clutches via Spinlock deck organisers each side which were sound and in good condition. The past partner casting is braced beneath the coachroof by twin short struts and rigging screws into the mast wall. These were sound and well tensioned.

The halyards and control lines are made fast by banks of Spinlock XT clutches either side of the companionway, six each side in two triples. These are in good working order and the teeth were examined for wear. Aft of them is a pair of Harken 40 two speed self-tailing halyard winches. A further pair of Harken 44 two speed self-tailing sheet winches are mounted outboard of them alongside.

These 44's could have been intended as genoa sheet winches led from cheek blocks on the coamings, but an additional pair of Lewmar self-tailing two speed 46's are now mounted on the coamings for the genoa sheets. The Harken 44's are probably re-assigned to halyards as the lead from the clutches to the Harken 40's are not good on the port side.

None of the winches could be tested under load. The ratchets sounded clean and firm but it is always recommended to service winches annually. Winch sizes are based on power gearing and not physical size. (*See explanatory note 6*)

Recommendation

(Cat 2) Service the winches replacing pawls and springs as necessary

The main sheet block by Harken is set on a ball bearing car on a track across the cockpit forward of the steering pedestal. This car is controlled by a pair of three part purchases stopped with cam cleats on the car. The main sheet is double ended with 4:1 coarse purchase on one end, and a 16:1 double ended fine purchase on the other. This is well set up and very efficient.

Aft of the anchor locker is an electric Lofrans vertical anchor windlass mounted in a recess. This has a wireless remote operation with a remote controller stowed in the chart table. The windlass worked when tested but it was not tested under load.

Mast shrouds are pinned to chainplates which are fastened through the deck to plates in the deckhead which have tie rods attached. These tie rods transfer the rigging loads to stainless steel brackets bolted through an integral hull ring frame. These appear well seated and the anchor points in the hull are well constructed and free of movement. There is no evidence of leakage through the deck plates to the accommodation.

There are no corrosion tracking stains on the below decks structure which is visible through the joinery. Any evidence of significant hidden corrosion in load bearing stainless steel components must be investigated as a potential for failure through corrosion stress fracturing. (*See explanatory note 6*)

j) Safety equipment

The vessel is equipped with a tubular stainless steel pulpit and twin pushpits. Tensioned between is 4mm 1 x 19 plastic coated upper and lower stainless steel guardwires with roll swaged end fittings and rigging screws for tensioning. The guardwires are continuous. The pulpit and pushpits are in good condition although slightly dented in places, and are well secured into the deck.

The guardwires are in reasonable condition with only a little corrosion staining where the wire emerges from the coating at the ends by the terminations. The plastic coating can accelerate anaerobic corrosion in stainless steel and it is recommended to routinely replace guardwires after 10 years. The wires are not fully tensioned, but there is good scope for further tensioning in the rigging screws.

There are four stainless steel stanchions each side socketed into cast aluminium stanchion bases bolted through the deck and toe rail. There is some movement between the stanchions and the bases and the bases flex slightly in the deck, but they are well seated and secure.

There are no webbing jackstays seen fitted to the side decks, but there are folding pad eyes for their fitment. There are four harness strongpoints fitted to the cockpit sole and there is a pair within easy reach of the companionway for crew to clip on before exiting the accommodation.

Recommendation

(Cat 1) Install webbing jackstays to the side decks for crew going forward

On the coachroof top there is a pair of stout teak handrails fitted to moulded projections on the coachroof. These are sound and in good secure condition. There is a stout handrail along the rear and side edges of the spray hood and a handrail loop in the cockpit over the steering binnacle. A folding transom ladder extends to give a bottom rung well below the waterline for crew to board from the water unaided. This is well secured and functional.

There is a pair of horseshoe lifebelts stowed on brackets on the pushpits. These have floating flashing lights but they are not tethered to the lifebelts. The lights have sealed batteries and are dated for expiry 08/13. The lifebelts are also not properly marked with the vessels name and a second identifier such as a port of registry.

Recommendation

(Cat 1) Replace light units and tether them to the lifebelts. Mark the lifebelts with the vessels name and port of registry

k) Skin fittings & seacocks

Note; Bronze is conventionally an alloy of copper and tin, but the term is now popularly used to describe a wider range of copper based alloys which have no tin content but zinc and other elements which can provide similar dezincification resistance. There is no non-destructive test for alloy composition which is practical within the scope of this survey. Where visible casting marks indicate a particular alloy, it will be described. Otherwise, where the term 'bronze' or 'brass' is used in this report it denotes a copper based alloy of indeterminate composition. (See explanatory note 7)

There are a total of 8 though hull fittings near, or below the waterline. Two are glass filled nylon skinfittings for the depth and speed log transducers situated under the forward end of the dinette seating. These are in good and sound condition. There is a blanking plug attached for use when cleaning the impeller.

Five valves located under the heads basin and are associated with the heads compartment. These are the toilet flush water intake, toilet discharge, basin drain and shower pump out. This compartment also houses the bilge pump. Under the galley sink is the galley sink drain valve and in the forward engine space is the engine cooling water intake valve.

There is also a capped off skin fitting alongside the galley. This is in good order and is assumed to have been for a seawater intake for the galley. There is a foot pump for this purpose and a single plain faucet at the galley sink. The pump suction hose is no longer connected to this valve and now appears to be attached elsewhere and the pump produced nothing when pumped.

All the valves are brass ball valves and all except the toilet discharge valve are nickel plated. They were all inspected for condition and hammer sounded and the hoses tug tested. All the handles turned properly and the brass checked for good colour. All the valves were found to be sound.

These valves are not all marked for alloy quality. The larger toilet discharge valve is marked MS58 which is a standard zinc brass and the other valves appear to be of the same manufacture. These valves are an ordinary zinc brass. They are used by boat manufacturers and sold in chandlers because they meet the RCD requirement for a five year service life.

These valves should be regularly inspected for signs of deterioration. The metal should be scraped back to clean yellow metal and checked for colour which should be a bright gold. Any sign that the colour is carrot red and the metal sounds dull when tap tested is an indication that the metal has suffered from dezincification, and the valve must be replaced. (See explanatory note 13)

When replacing valves or skin fittings always use dezincification resistant alloys which will be marked DZR or CR or with the alloy classification CW602N or CZ132. All hoses to hose tails on the underwater fittings have been correctly attached using double worm drive hose clips.

All the valves should be individually fitted with appropriately sized soft wood tapered bungs. These should be tethered to the skin fittings for sealing a skin fitting in the event of failure.

Recommendation

(Cat 1) Install appropriately sized tapered soft wood bungs attached to each skin fitting.

There is no bonding system linking a hull anode to all the skin fittings. This type of bonding is no longer considered to be best practice. (See explanatory note 8)

I) Engine

The engine is a Yanmar 3YM30AE diesel engine serial no. E10737. This is an indirect injection 1,266 cc naturally aspirated three cylinder diesel developing 29.1hp (21.3 kW) at 3200 rpm. The engine is continuously rated at 26.5 hp (19.4 kW) at 3100 rpm. The engine is dated Jan 2015 and is understood to have been installed in the same year.

There is an engine hours meter showing 255.4 hours run. The engine is freshwater cooled with a heat exchanger. Raw seawater is drawn from valve with a top opening seawater strainer. It is pumped by an engine driven Jabsco type pump through a combined water cooled exhaust manifold and heat exchanger and injected into the exhaust elbow.

The exhaust system has a Vetus silencer/waterlock in the hose fitted immediately behind the engine and the exhaust exits under the starboard quarter in a stainless steel skin fitting. The fresh water is circulated by an internal water pump through the block and head and heat exchanger. The engine sits on cushioned engine mounts fitted to moulded solid beds. The engine mounts are clean and the rubbers are good and still well bonded when tested with a pry bar.

The engine oil was checked and was lightly carbon laden and appeared to have been recently renewed. It was free of particulates and was well filled. The alternator and water pump belts were well tensioned and there were negligible powder residues around the block. The alternator belt is behind a cover and black powder can be an early indication of a deteriorating belt.

The engine was in a good clean condition with a good film of paint over the whole engine. There were no obvious signs of water leakage from the water pump or oil leakage from the engine. The engine sump and bilge beneath had a polypropylene oil absorbent mat that was fairly clean.

The engine is coupled to a Kanzaki KM2P reduction and reversing gearbox serial no. 40919. This has a 2.62 reduction ratio. The gearbox oils were clean but slightly darkened. The probable cause of discolouration is that the oil has been burnt by heat generated by a slipping cone clutch.

This is the largest engine to be fitted with this model of gearbox and is close to its quoted capacity. A slipping clutch can be caused by a badly adjusted cable preventing full engagement. It can also be caused by the wrong grade of oil or the oils being well passed their useful life. The gear engagement should be checked and the gearbox oils should be drained and re-filled.

It is usually considered best practice to renew the gearbox oil with every other renewal of the engine oils. This may not have been done and the gearbox oils could be quite old. The gearbox oils should be renewed with the correct grade and the situation monitored. If a slipping clutch is discovered then the gearbox can be overhauled and the cones lapped in with grinding paste restoring the correct finish to the driving faces.

Recommendation

(Cat 2) Check gear shift alignment and drain and refill oil with SAE20 or 30HD

There is a single lever engine control on the steering binnacle and the instrument panel on the port side aft cockpit coaming. There is an engine stop button which operates a solenoid on the engine which is connected to the stop lever on the injector pump. The stop lever can also be operated manually if there is an electrical failure.

The engine control panel is in a good cosmetic condition with a revolutions counter and warning light system. The panel was powered up and the engine started almost instantly. All the warning lights extinguished and the gears engaged properly. There were no unusual sounds, vibrations or emissions of smoke. There is little else to be gained without a full sea trial where the engine can be brought up to full working temperature and placed under full load.

m) Fuel system

Diesel fuel is stored in a rotationally moulded HDPE plastic fuel tank situated under the starboard aft cabin bunk. This tank is filled by a flush deck filler in the adjacent aft starboard side deck. Fuel is drawn by a siphon tube in the top of the tank with a shut off valve. This is operated by a Bowden cable led back to a pull handle in the starboard cockpit locker. This can remotely isolate the fuel supply to the engine compartment in the event of a fire or fuel leak.

Fuel is fed in to a Racor centrifugal type fuel filter in the same compartment as the engine. This filter has a glass water separator bowl and no water was seen in the bowl. From the filter, fuel is supplied to the engine lift pump, to the injector pump and returned to the tank. These hoses are all ISO 7840 A1 flexible fuel hose and are in good condition with no signs of leakage.

The diesel fuel supply to the Ebespacher heater is from a separate siphon tube in the tank top with its own shut off valve. This is a correct arrangement. Fuel should not be taken from the same fuel line as the engine as it can cause air locks in the engine supply and stop the engine.

n) Stern gear

The stern gear consists of a clamp type coupling driving a 25mm diameter propeller shaft. This turns in a stern tube with a Volvo 'Blackjack' stern gland. These glands are water cooled and need to be bled whenever the vessel is launched to expel any air that is trapped. This is done by pinching the top of the gland until water appears.

It is usually recommended to replace these glands after 7 years and this gland is possibly original to when the engine was replaced in 2015. There is some water in the bilge beneath the gland which could be leakage, or could be from bleeding the gland. Persistent leaks are usually revealed by a calcareous deposit forming on the shaft ahead of the seal. No such deposit was seen.

The stainless steel propeller shaft was seen to be free of evidence of corrosion staining. It was tested with a magnet and was seen to be non-magnetic indicating it was a 300 series marine grade stainless steel. Only 300 series stainless steel grades are Austenitic and non-magnetic. (see *explanatory note 12*)

The shaft is held in a P bracket which is well secured within the hull. When stressed there was no sign of movement at the joint to the hull. The P bracket holds the shaft in a cutless bearing. This is an all nitrile rubber bearing specifically made for Jeanneau which does not have a conventional rigid brass or phenolic shell. The shaft shows a small degree of radial slack in the bearing. The bearing is also slightly loose in the P bracket.

These bearings are less expensive but are known to have a faster wear rate than conventional rigid cased bearings, often lasting no more than a couple of seasons. These bearings should show an initial clearance of less than 0.1mm which is almost imperceptible, whereas it is now about 0.5mm. The sale particulars state that the bearings was replaced in 2018 which is an unusually short life. The slack may not yet be enough to cause vibration but wear will accelerate and will need replacement in the next season.

Recommendation

(Cat 2) Consider an early replacement of the cutless bearing

Affixed to the shaft ahead of the P bracket is a clamp type shaft anode which is slightly eroded. There is no hull anode or bonding system so this anode is the only cathodic protection for the stern gear and should be replaced.

Recommendation

(Cat 2) Replace the shaft anode

The propeller is an equipoise fixed three blade propeller. The propeller was scraped back and seen to be of good colour and free of electrolytic erosion and cavitation damage. It also sounded well when hammer tested. The size was marked on the hub as 16" x 12" and it is secured on a taper and keyway.

The propeller showed slight magnetic flux indicating it was made of Manganese Bronze. This is not a bronze but an alpha brass with the addition of manganese for some dezincification resistance. It also contains between 1% and 4% of iron which makes it slightly magnetic. The propeller nut was also of a bronze alloy and is soundly secured with a split pin.

A calculation of performance based on vessel dimensions and engine specification gives a maximum speed of 7.4 knots with a 16 x 12 propeller. This calculation assumes a lightly laden boat with a clean bottom. The engine is very slightly underpowered for the vessel, as displacement speed is 7.5 knots and would require an engine to be delivering 31hp.

o) Steering system

The steering system is a semi counterbalanced GRP spade rudder. This is made as two clam shell mouldings over the stock with welded tangs extending inside the blade. The void is foam filled and when tested with the Sovereign meter showed 27 deep scale at the bottom and 31 deep scale at the top.

This is not unusual as it is almost impossible to prevent some moisture absorption into the foam at the immersed bond between the stock and the GRP blade. These figures are not excessive and do not represent a significant defect. There was no sign of the bonded joint between the two clam shells starting to show or open up.

The stainless steel rudder stock turns in acetal bearings within a short rudder tube moulded into the hull bottom. The rudder showed a substantial degree of lateral movement in the lower bearing and the bearing was loose and floating up and down the rudder stock. The bearings in these boats are Delrin acetal plain bearings which to accommodate possible mis-alignment, are mounted within rubber bushings bonded into the tube top and bottom.

The lower bearing has an O ring fitted just above the flange to prevent water ingress. The bearing is moving within the rubber bush which is due to the rubber perishing and shrinking releasing its usual tight grip on the acetal bearing. Although it appears that it is only the lower rubber bushing that has failed, it is usual to replace both bushes and both bearings.

Recommendation

(Cat 2) Remove rudder and replace both upper and lower bearings and bushes

The steering is by a destroyer type stainless steel and leather bound wheel mounted on a pedestal within the cockpit. The steering mechanism is by Goyiot and is a cable system with a short section of simplex roller chain fitted to a sprocket inside the pedestal which is turned by the wheel. Removable panels in the after end of the aft cabin gives access to the underside of the steering mechanism.

Either end of the roiller chain are short lengths of 7 x 19 wire cable passed round sheaves and then around a quadrant on the rudder stock. All was in good condition and well greased, but the cables were inadequately tensioned causing a small degree of slack in the steering. Slack can cause the cables to become detached from the quadrant or the roller chain to jump a tooth. The steering cables should be tightened.

Recommendation

(Cat 2) Tighten the steering cables

The autopilot is a Raymarine electromechanical linear actuator which is mounted in the steering flat and acts directly onto the quadrant. The Raymarine ST6002 course computer control is mounted on the starboard coaming and was powered up and the wheel moved correctly when given a dodge input. This could not be tested in service.

The rudder stock terminates in a milled profile which engages in a fitting on an emergency tiller. The stock is accessed through a small hatch under the lifting helm seat. The emergency tiller is a galvanised steel handle stowed in the port cockpit locker. The emergency steering was not be tested in service but appeared to be in good functional order.

p) Mast spars and rigging

The mast is a silver anodised double spreader 9/10ths fractional rigged spar by Z Spars. The spreaders are moderately swept at 22.5° and the rig is conventional with discontinuous cap and upper diagonal shrouds and lower diagonal shrouds pinned to common chainplates. There is a forestay and a single standing backstay with a bridle and 24:1 cascade tensioner.

The spar is in good condition with the anodising almost unmarked over it length. The mast is keel stepped with an alloy mast partner casting and a rubber gaiter at the coachroof. This is all detailed elsewhere. The mast is standing in column and is well tensioned. There is no corrosion at the foot or around riveted stainless steel mast fittings where it might be expected.

The spreaders are mounted on cast alloy roots which are passed through the mast. These were well seated and secure when vigorously swigged. The vang is a telescopic strut with an internal gas spring and a five part purchase system. This is attached to the mast by a riveted alloy plate. These fittings were tested by a pry bar and were found to be well seated and secure.

The gooseneck fitting is an alloy casting riveted to the mast and has a hinging alloy plate with a hole for the boom end fitting. The pivot pin was seen to sit vertical. The boom is also by Z Spars. It is good condition with the end fittings in anodised aluminium and riveted on securely. The boom is set up for slab reefing with sheaves at the gooseneck and the clew. These were all seen to be intact where they could be examined.

The mast has a T track on the forward face for a spinnaker pole but there was no car fitted or endless hauling line. There is a spinnaker pole attached to the guardwires but it clearly has not been used recently. The piston fitting at the forward end is seized. No spinnaker or asymmetric cruising chute was seen on board. The pistons could be fixed so it can be used for poling out the genoa.

Recommendation

(Cat 2) Free up the pistons to the spinnaker/whisker pole

The rigging terminations are all roll swaged terminals. All were examined at deck level for signs of broken strands, evidence of corrosion and signs that the wire is drawing out of the swage. All were seen to be in good, sound and corrosion free condition. All the rig is in Dyform stainless steel wire.

Dyform is conventional 1 x 19 wire which has been rolled through dies to compact the strands. This wire has approximately 30% increase in breaking strain, roughly equivalent to the next gauge up in size. The lower cap shrouds are in 8mm wire and the upper cap, upper diagonal and lower diagonals are all in 7mm wire. Neither the forestay nor backstay wires could be measured.

All the shrouds at deck level have fork ended open bodied chromium plated bronze rigging screws. All were seen to be in good physical condition and all are seized with split pins. The upper fittings are stemball swaged terminations which engage in pressed stainless steel cups in slots in the mast wall. This is a good arrangement as it ensures perfect alignment of the swages to the line of load. It is understood that the standing rigging was renewed in 2016.

Installed on the forestay is a Hood Seafurl roller furling gear with an aluminium head stay foil and a plastic drum in a stainless steel casing. The control line is fed back to the cockpit along the coachroof top on the port side and the line is locked off by a Spinlock clutch. All was in good cosmetic condition but could not be tested safely due to the wind conditions.

q) Sails and running rigging

There were four sails seen on board at the time of survey. The main sail and furling genoa were bent onto the spars and furled. Neither could be fully hoisted for examination due to the strong cross wind. They were examined for what could be seen.

The mainsail is flaked onto the boom in a 'stack pack' type sail cover with a top zip and lazy jacks. The sail was seen to be a new looking, very clean and crisp white Dacron fabric. It is a cross cut sail by One Sails in a premium woven polyester and is made with three slab reefs and hoisted on sliders.

The genoa is also a cross cut sail in a Dacron cloth by Elvestrom Sails with a white UV sacrificial strip. This could not be unfurled due to the strong wind but was seen to be of a quite faded and softened fabric. Elvestrom were the OE sail suppliers to Jeanneau and this sail could be original.

Also seen stowed below decks was a storm jib in safety orange fabric also by Elvestrom. This appears to be unused and is on a bolt rope meaning the furler has to be removed for the storm jib to be set. Also bagged below deck is a newer roller furling genoa by Quantum Sails. This is a white cross cut Dacron sail with a white UV strip and is in sound and substantial condition although it is quite stained and faded in the exposed sections when furled.

None of the sails could be fully examined. Their real condition can only be proven in a sea trial where the sails can be set to windward and their fit, shape and set can be fully tested. All of the running rigging is in double braid polyester. All the ends have been heat sealed with none being whipped or with mousing loops. All the lines were in apparent serviceable condition but with some fade and discolouration.

r) Sea toilet and heads compartment

The sea toilet is installed in the head compartment on the port side aft. It is a Jabsco with a black handle. The handle colour is important in order to identify the correct service parts. The toilet itself is in good condition with a ceramic bowl and plastic seat and lid.

The discharge hose is in a white odour free sanitation hose. This is run in a shallow swan neck under the basin worktop and discharges through a skin fitting beneath the basin. The valve is detailed elsewhere. The hose is double clipped with stainless steel worm drive hose clips.

The seawater inlet hose is run from a seacock in the same cupboard in the heads compartment but runs in a tall swan neck up under the deck head in the cupboard outboard. The toilet could not be tested but appeared in good working order. There is no holding tank system installed.

Aft of the shower compartment is a wet hanging locker which also drains into the sump. Behind the basin and toilet are two large cupboards with hinging doors, the basin cupboard door is mirrored. All was clean and in good order. Beside the toilet is a small hand basin moulded integrally with the worktop.

The basin drain runs in nylon reinforced PVC hose to a seacock directly beneath. All the skin fittings and valves for the toilet system are in the cupboard beneath the basin. The heads compartment is designed as a wet room and the basin faucet draws out on a hose to use as a shower head.

The heads compartment sole is a shower tray with a drain running to a diaphragm pump in the cupboard. This is operated by a switch in the back panel and the isolator is on the main switch panel. The pump did not operate when tested. This should be investigated and repaired.

Recommendation

(Cat 2) Investigate the supply and switching to the shower pump out

s) Fresh water system

There are two water tanks on board the vessel. The main water tank is located under the port aft cabin bunk. This is a rotationally moulded HDPE tanks and has a capacity of 186 litres. This tank is filled by a flush deck filler in the adjacent aft port side deck. Cold water is fed in nylon reinforced PVC potable water hose to a manifold under the chart table.

The secondary water tank is under the forepeak berth. This is also a rotationally moulded HDPE tanks and has a capacity of 150 litres. This tank is filled by a flush deck filler in the adjacent port side deck. Cold water is fed to the same manifold. This has two shut off valves and only one valve should be opened at any one time as otherwise the pump will draw air from an empty tank in preference to water from a full one.

Pressurised water is supplied from the manifold by a Jabsco pressure pump and a Jabsco accumulator tank to smooth out the water flow. Both are situated under the chart table. All powered up and worked satisfactorily delivering cold water to faucets in the heads and galley. The supply also feeds the deck shower which is a pull out shower head located on the starboard transom.

Pressurised cold water is also delivered to a C.Warm 20 litre hot water calorifier. The calorifier is located under the forward settee berth and a heating coil receives heating water from the engines closed cooling system. There is also a 240 volt immersion heater element. From the calorifier, pressurised hot water is then fed in insulated hose to the same faucets in the heads and galley and transom.

t) Galley

The galley is on the starboard aft side of the saloon. It is in an L shape with an ENO gas cooker on gimbals facing outboard, detailed elsewhere. The athwartships section has twin square and deep stainless steel sinks facing forward. The sinks have a swivel faucet mixer tap with hot and cold fresh water and also a small single faucet. This is expected to have been for salt water but it is not connected.

There is a large top loading refrigerator in the corner and the compressor unit for the fridge is located under the dinette seating with the control unit in the fridge compartment. The fridge is switched at the main switch panel and chilled down when tested. The work tops are in an off white laminate finish and the joinery has substantial moulded hardwood fiddles all round.

Storage is provided by cupboards with hinging doors in matching joinery behind the cooker incorporating plate racks above and cupboards with hinging doors beneath. All was in good functional condition although the appliances could not be tested. There is a crash bar in front of the cooker and addle eyes for provision for a bum strap. This is well set up for cooking whilst in a seaway.

u) Electrical system

There are four sealed type lead acid batteries installed as two independent banks, one for the domestic power supply and the other for engine start. Domestic supply batteries are 3 x Numax deep cycle 120 amp/hr batteries which showed 12.57 volts when tested. The engine start battery is a single Vetus 70 amp/hr deep cycle battery which showed 12.69 volts.

Two domestic batteries are under the starboard side bunk base whilst the other two are located under the aft cabin berth opposite. All are securely installed in closed compartments. The sale details describe a third battery for the windlass. This could not be seen and the battery monitor showed zero volts for the third battery bank when tested.

Battery charging is by the engine driven 60 amp alternator which is managed by charging relays located in the engine space. This gives priority to charging the engine battery until fully charged, before switching in the domestic bank. There is also a Cristec 25 amp mains powered switch mode battery charger with isolated outputs is located under the navigators seat.

The battery isolator switches are in the rear panel of the engine space cover in the port aft cabin. There are three isolator switches. One each for domestic and engine start batteries and one for the common negative. There is also bus tie shunt for emergency use. The two supply circuits were tested for drain, negligible readings were seen showing that the circuits were well insulated.

DC circuits are supplied from a 15 switch panel on the port side at the chart table. All the switches are breaker switches and are labelled and operated satisfactorily. There is a moving coil voltage meter and a selector switch to check the individual battery banks.

The display showed readings which were consistent with the measurements taken from the two battery banks. There was no third battery voltage recorded as noted. There is a 12volt power socket below the gauge. All the circuits were powered up and the appliances tested where possible.

All the navigation and communications electronics powered up properly. The depth and speed log displayed although the vessel was out of the water and no signals could be processed. The Garmin chartplotter obtained a fix and the Tacktick showed speed and direction of wind. Voice was heard on the VHF but no GPS location was displayed. The Raymarine GPS did not obtain a fix and failed to output NMEA to the VHF. This should be repaired or replaced.

Recommendation

(Cat 1) Repair or replace the GPS and interface to the VHF

Cabin lights are all low voltage halogen units to the deckhead, five in the main saloon, two in the forepeak and one each to the aft cabin and the heads. There are reading lights to the aft cabin bunks and the chart table. All lights worked when tested.

The vessel is equipped with a combination pulpit mounted navigation light and a transom mounted stern light. There is also an all-round white anchor light on the mast truck and a combined steaming light and deck flood light on the mast below the upper spreaders. The navigation lights were all tested and all worked. Other appliances are detailed elsewhere.

The wiring through the vessel is generally tidy and well secured in conduit. A 240volt shore power system is installed with the input socket in the starboard aft cockpit locker. In a consumer unit alongside is a 16 amp RCD. The shore power was not connected at the time of survey.

At the chart table switch panel there are individual MCB breaker switch positions for the battery charger, the immersion heater and the power sockets. There is also a reverse polarity warning light in the panel. This warning light is useful when berthing in continental Europe where the neutral and live wires are often reversed in the supply.

Some vessels carry reversing adaptors which can correct the polarity if the warning light were to indicate a reversal. There is no galvanic isolator or isolating transformer in the shore power supply. These devices protect the vessels immersed metals from electrolytic erosion by isolating the ground wire whilst still providing earth leakage protection. *(See explanatory notes 17 & 19)*

v) Gas system

The gas system is supplied from a dedicated gas locker situated in the port side aft cockpit locker. It has a sealed well secured cover lid and drains overboard. It contains one 2.7kg gas cylinder and a second spare of the same size. The flexible hose from the regulator is dated 08/2008 and the regulator is undated but assumed to be of the same age.

Gas piping runs from the locker to the galley and is well secured along its length. There is a shut off valve beneath the cooker and the cooker is supplied from a bulkhead fitting via a flexible hose which is dated 2001. Both the hoses and regulator are time expired and should be replaced. *(See explanatory note 10)*

Recommendation

(Cat 1) Replace the gas hoses and the gas regulator

The cooker is an ENO all stainless steel two burner cooker with oven. There is a flame failure device on all the burners. The cooker was not tested but looked to be in a good clean and functional condition. Testing gas systems should only be carried out by a Gas Safe (marine) engineer using certified equipment which is outside the scope of this survey.

Installed at the chart table is a Vetus gas detector system. This has a sniffer sensor in the cupboard beneath the cooker. This unit powered up when the batteries were engaged and performed a test cycle. No alarms were activated and the unit appeared to function properly.

w) **Fire fighting equipment**

There are three fire extinguishers seen on board. All are 1kg 5A 34B dry powder extinguishers, one installed in each aft cabin and one stowed loose in the saloon lockers. Two extinguishers have service record cards attached showing a next service date 2008. There is no fire blanket installed at the galley.

The extinguishers have dial indicators which showed good pressure. Extinguishers should be subject to annual inspections and discharge tested every five years. Both extinguishers should be serviced or replaced. It will usually be cheaper to replace these small units rather than have them discharge tested. Many cannot be re-charged anyway.

Recommendation

(Cat 1) Service or replace all the fire extinguishers. At least one extinguisher should be placed which is accessible from outside the accommodation. A fire blanket must be installed at the galley.

There is a bunged extinguisher hole in the side of the engine box under the companionway steps. This is so that an extinguisher can be discharged without opening the engine covers.

If installing an automatic extinguisher in the engine space it must be a gas type extinguishers containing FE36 or FM200 halon replacement gas. Powder type extinguishers can cause serious damage to engines if used whilst engine is running and the powder ingested into the engine. (See explanatory note 11)

x) **Bilge pumping**

The main manual bilge pump is a Henderson single acting diaphragm type pump and is located in the port side aft end of the cockpit. It pumps from a hose in the keel sump, and discharges high in the transom. The sump is a moulded box in the hull bottom which recesses into a profile in the keel landing seam.

There is no strum box on the end of the hose which would prevent large particles from being drawn into and damaging the pump. The handle is held on clips in the starboard aft cockpit locker. This pump appeared to function satisfactorily although there was insufficient water to discharge.

Located in the head compartment cupboard is a Jabsco electric diaphragm pump. This also draws from the moulded sump in the keel and is manually switched at the chart table panel. This worked when tested. Both pumps should be regularly tested by introducing water into the bilge if necessary. Manual pump choker valves can harden and cease to function when unused or when a vessel is laid up over winter.

y) Interior fit-out

The fit out is executed in teak faced plywoods and solid wood mouldings. The joinery is well executed with solid hardwood framing and edge banding to the cupboard doors with no unfinished edges shown. The fiddle and shelf edgings are substantial mouldings with rolled edges and all is finished in a satin rubbed varnish. Some panel work to the galley and the chart table is finished with teak effect laminate faced plywoods although they are not a good match to the grain.

In the main saloon there is a 'U' shaped dinette with a table offset from the centre line to starboard of the vessel. The dinette can also be converted to a double berth by lowering the table, and an optional infill cushion fitted over it. This cushion is located under the forepeak berth

The navigation station has a half Admiralty Chart sized table with a lifting lid and stay. There is a dedicated seat for the navigator with storage under. There are ample storage facilities with cupboards and shelves behind the saloon berths.

The companionway steps are wooden steps mounted onto a substantial GRP moulded engine box cover. The steps are firm and secure and have turned up outer edges to provide a secure foothold when the boat is heeled. The centre section hinges forward for access to the engine space and is well secured by sliding bolts.

In each aft cabin the engine compartment covers and the bunk bases are removeable for full access to the engine, gearbox and drive train, although the large cushion needs to be removed. All this was in good condition and provides ample access for maintenance.

All the saloon and cabin upholstery is plain foam filled cushions of cream vinyl fabric with piped edges. This is a hard wearing material and is intact although quite stained and abraded in the exposed areas. The main cabin headlinings are in off white vinyl covered plywood panels which are secured by Velcro. This provides access points for the fastening of some of the deck fittings.

This is in good condition with no signs of sagging normally associated with this form of headlining. There are no hand holds in the coachroof head but there is a substantial moulded profile below the window line for a good hand hold in a seaway.

The accommodation is heated by an Eberspacher Airtronic diesel fuelled warm air heater mounted inside the transom. This heater appears to only direct heat to the starboard aft cabin although this will ultimately warm all the accommodation. The heater control is in the port aft cabin and the heater was powered up and tested and delivered warm air to the outlet.

There are plastic curtain tracks above all the saloon and aft cabin windows, but no curtains were fitted at the time of survey. The sole boards are in teak and holly effect laminate faced plywood. These are well secured by being a good close fit although not actually fastened down. They are a bit uneven as some of the rubber seals on which they sit are missing.

Individual access panels to the bilge compartments have finger holes for lifting. The bilges were fairly clean but uniformly covered in a light detritus which shows that there has been no attempt to remove evidence of leakage. The fit out shows evidence of significant use, typical of an ex commercial vessel.

There is a headlining panel missing around the mast partners. There is bruising to the varnishwork around the working areas such as galley and chart table. There are some screws missing and stripped threads to some access panels. Some abrasions to the veneers have been touched in with varnish which shows as dark spots. All the accommodation is however quite functional and could be refurbished back to a high standard.

z) Additional equipment

The following equipment was seen on board the vessel. Inclusion in this list does not guarantee that the items are include in the sale inventory

Silva main steering compass on binnacle, good condition

Raymarine ST60 tridata display, powered up working, 27,827 miles recorded

TickTack MN100 wind speed / direction display, powered up, working

Raymarine ST6002 autopilot, powered up, working

Raymarine RN300 GPS navigator, powered up, no fix obtained

Garmin GPSmap 550, powered up, working, fix obtained

Icom IC-M501 Euro VHF transceiver, powered up, voice heard

Icom DS100 DSC controller, powered up, no GPS input

SX- Micro 90 handheld VHF, did not power up

Battery monitor and USB sockets

Plastimo barometer and clock at chart table, working

JVC FM/CD/MP3 player, powered up, working

Pair of stereo speakers to the saloon, working

Pair of stereo waterproof speakers to the cockpit, working

Windex wind indicator and VHF aerial at masthead
Black polyester canvas sprayhood and frame, good condition
Black polyester Stak Pak type sail cover, good condition
Black polyester wheel cover, good condition
Black polyester cockpit dodgers, fair condition, one securing point missing
Boat hook
Deck scrubber
Various mooring warps and fenders, good condition
Bruce anchor, chain and warp, unmeasured
Winch handles and winch handle pockets
Shore power cable
Cockpit cushions
Inflatable dinghy, oars and seat
2 inflatable lifejackets, not inspected
Coil of hose
Ensign and ensign staff
Outboard bracket on pushpit
Engine and equipment spares
Engine and equipment manuals
Electric and gas kettles
Various crockery and cutlery
Scatter cushions
Waveline tube radar reflector
Ocean Safety first aid kit
Gas fog horn
Offshore flare pack (expiry 2012, 2013, 2014)

Recommendation

(Cat 1) Dispose of outdated flares legally

- 4) **Summary of recommendations** This is intended as a check list. Full details must be read which can be found in the body of the report. Page references are given (p#)

Category 1 recommendations are safety related defects which must be corrected before the vessel is put into commission.

- (p15) Install webbing jackstays to the side decks for crew going forward*
- (p15) Replace light units, Mark the lifelbelts with the vessels name and port*
- (p17) Install tapered soft wood bungs attached to each skin fitting.*
- (p25) Repair or replace the GPS and interface to the VHF*
- (p26) Replace the gas hoses and the gas regulator*
- (p27) Service or replace all the fire extinguishers*
- (p30) Dispose of outdated flares legally*

Category 2 recommendations relate to defects which affect the operation of the vessel in normal use and should be attended to at the earliest opportunity.

- (p13) Repair or replace the cars to the inner sheet tracks.*
- (p14) Service the winches replacing pawls and springs as necessary*
- (p18) Check gear shift alignment and drain and refill oil with SAE20 or 30HD*
- (p19) Consider an early replacement of the cutless bearing*
- (p19) Replace the shaft anode*
- (p20) Remove rudder and replace both upper and lower bearings and bushes*
- (p21) Tighten the steering cables*
- (p22) Free up the pistons to the spinnaker/whisker pole*
- (p23) Investigate the supply and switching to the shower pump out*

Category 3 recommendations relate to conditions which are cosmetic or affect the value of the vessel and should be attended to in the next lay-up season

- (p6) Clean out and fill the air pocket with thickened epoxy.*
- (p9) Protect topsides gel coat with polishes containing PTFE compounds*

5) Conclusions

[REDACTED] is an example of a popular cruiser/racer yacht. The design provides for comfortable accommodation and facilities for two couples or a family, or a racing crew of up to nine persons. The boat was clearly designed and built to compete in a highly competitive market with a high specification at an attractive price

The log reading of over 27,000 miles demonstrates some intensive use over its life. This shows in the condition of the fit out, but the structural and mechanical condition has stood up well to the level of use. A vessel coded for commercial use is subject to annual compliance survey which usually ensures that defects are attended to in a prompt and professional manner.

The mechanical equipment has been subject to extensive upgrading with a replacement engine and stern gear, new standing rigging and new batteries. The sails and canvas work have also been recently replaced. Much of the navigation and communications electronics, and galley fitments are original to the build but are mostly still in good functional condition.

The hull is sound and dry of moisture ingress. There could have been some extensive repairs to the stem but the laminate tests well and the gelcoat is well finished. The deck shows some moisture ingress in the port side deck but is still well bonded. The hull to deck seam is intact showing little impact damage. The mast and spars are all in a good, almost unmarked condition. Some deck gear is damaged but all is of good quality equipment and can be repaired.

The items on the list of recommendations reflect the updating of some safety related features and the routine service of equipment. There are also some minor repairs and electrical issues that need investigation. The only significant defect is to the rudder bearings which need replacement but do not threaten the immediate security of the vessel. There are no significant structural or mechanical issues to be addressed.

The boat is in a generally sound and safe functional condition. Although showing evidence of hard use, the structure has stood up well and the mechanics show regular and effective maintenance. There is little scope for upgrading except maybe a holding tank system and some updated navigation electronics. Once the recommendations list is attended to, [REDACTED] will be in in a safe and sound mechanical and structural condition.

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[REDACTED]