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MCA coding surveyor

Survey Report no: [REDACTED]

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Name of Vessel: "[REDACTED]"

Type of Vessel: 2005 Model Najad 380, FRP (fibre reinforced plastic), Bermudian sloop sailing vessel

Type of survey: Pre-purchase

At the request of:

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

This survey was carried out on the [REDACTED] in the water and in slings at Marina Punta Gabbiani, Aprilia Marittima, Italy. The above named being a prospective purchaser of the vessel.



Limitations:

- ✚ Where access is restricted by fixed panels, linings etc. it was not possible to examine and I cannot say those areas are free from defects.
- ✚ This report has been prepared for the use of the commissioning client and no liability is extended to others who may see it.
- ✚ In some cases it is not possible to detect latent and hidden defects without destructive testing which is not possible without the Owner's consent.

Scope of Survey:

- ✚ This is a Pre-Purchase Survey and its purpose is to establish the structural and general condition of the vessel. Where items of equipment have been tested this will be stated in the text.
- ✚ Camera equipment was used in places to view normally inaccessible areas and the pictures analysed to identify any issues.
- ✚ A general inspection of the engine and installation will be made; this is a visual inspection and also running the engine but not under loads. It should be appreciated that some components may appear serviceable but found to be defective when the engine is run for a long period of time.
- ✚ The vessel was surveyed in and out of the water and tests carried out as described to ascertain any possible sources of water ingress.
- ✚ The hatches and port lights were not leak tested with a hose.

Recommendations:

- ✚ These will not be made concerning cosmetic or other minor defects, although relevant suggestions may be made in the text.
- ✚ Recommendations will be restricted to those defects which should be rectified before the vessel is used, (or within a given time span if specified), and items which may affect insurability.
- ✚ ***Recommendations will be printed in bold italics for quick reference.***
- ✚ The recommendations are contained in the body of report in order that they may be read in context, and are also listed as part of the conclusions at the end of this Report.

Conditions of Survey:

Vessel was examined in the water and then in travel hoist slings for 20 minutes. At this time, its keel was resting on two blocks. It was seen lifted, lowered and launched.

No special conditions affected the survey other than as described in the text.



Information is reported in the Sections below, followed by recommendations and conclusions.

Hull, Deck and Structure.

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3. Hull below Waterline.
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5. Deck Moulding.
6. Coach roof.
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Steering, Stern Gear, anodes and Skin Fittings

10. Rudder and Steering.
11. Stern Gear.
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13. Skin Fittings and other through Hull Apertures.

On Deck.

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17. Rigging attachment points.
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19. Other Deck Gear and Fittings.
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Rig.

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Accommodation and onboard Systems.

31. Accommodation General.
32. Gas Installation.
33. Fresh Water Tanks and Delivery.
34. Heads.
35. Electrical Installation.
36. Electronic and Navigation Equipment.
37. Heating & Refrigeration



1. Details of subject vessel:

The Najad 380 is built as an ocean cruising yacht by Najadvarvet AB, Box 10, 473 21 Henan, Sweden. Of Vacuum infused sandwich FRP (Fibre Reinforced Plastic) construction (the layers of gel coat and laminates have the air sucked out during build, effectively drawing resin into all voids, and have a layer of close cell foam between the inner and outer laminates). She is a Bermudian Sloop rig, with twin spreader mast. Number [REDACTED] has a fin keel of lead and FRP construction.

Manufacturers' information from owner manual aboard (not verified by measurement)

Length Overall	11.55
Length of waterline	9.9m
Beam:	3.65m
Draft:	1.95m
Displacement	9.1T
CE Specification	0098

Boat specific information

Registration	Italian [REDACTED] (marked on hull)
HIN number	SE NAJ 380 [REDACTED] F405 – (from number marked on hull).
Year of Build	June 2004, Model Year 2005
CE	Category A Ocean (from conformity document aboard)
RCD	94/25/EC

2. Keel

- The vessel has a moulded FRP keel stub as part of the hull moulding with a lead section attached at the bottom. The lead is attached to the hull with stainless steel studs and nuts with stainless steel backing plates.
- The keel was painted with red antifouling with no serious growth. The keel was checked in tension and resting.
- The keel is lying fair to the hull, with no signs of distortion at the joint. The joint was well filled with sealant except as noted below
- The underside of keel was checked as was the whole keel and there were no signs of impact or repairs although there is less antifouling applied to the underside.
- Access was only possible to one single nut aft and two pairs forward of this in the aft bilge area in the saloon. These were hammer tested and found, clean and not corroded. The other studs are all beneath the screwed down cabin sole and were not accessible for the survey.



- f) The bilge of the boat was dry although the very aft section had dried salty residue with a brown tinge
- g) The lead keel section has a number of what can only be described as blisters all over it in the coating. I believe the coating to be a thin epoxy coating. The "blisters" came away easily with a scraper leaving clean shiny lead beneath.
- h) The aft part of the joint of lead and FRP has a hairline crack in the filler, clearly visible both sides extending some 600mm forwards. I had the boat lifted and then lowered again to view this. When the boat was lowered onto blocks, water squeezed out of the joint.
- i) Moisture readings were taken on the FRP section and recorded 29 shallow and 30 deep. These readings are explained in the hull section below.

Recommendation- Lead keel. Based on the evidence above, both the water from the joint and the minor water in the aft bilge, the aft keel studs require tightening to the correct torque and the joint scraped and filled. Check again at next lift but be aware that the keel may have to be dropped at a later date.

Advisory Note – The lead section should have the blisters scraped off and a layer of fairing epoxy applied or directly applied antifouling.

3. Hull below Waterline:

- a) Construction of the hull below the waterline is FRP construction with sandwich sections of Divinycell (foam) with white gel coat. The manufacturer states the resin is Vinylester – this is the most water resistant resin used in boat manufacturing. As mentioned above the hull extends to a keel stub and there is a FRP skeg section forward of the rudder. I cannot ascertain if this is moulded as with the hull or bonded to the hull later but I believe it is added later.
- b) The vessel was seen sitting on its keel hanging in the travel hoist slings. No distortion was noted in the hull.
- c) Light hammer sounding was carried out (not heavy enough to damage anti-foul) of hull at regular intervals approximately 500mm spacing all over. No sounds of delaminating were noted.
- d) The antifouling was removed in just 4 patches approximately 50mm x 50mm at random around the hull below the water line. (Note:- Normally more patches would be removed but we were restricted by the short time booked in the travel hoist). There were at least 2 layers of antifouling well applied. These were applied over a hard gold, what appears to be an epoxy coating but could be just well adhered primer. While scraping I was looking for evidence of wicking or blistering and once removed all patches were checked with 10x magnification. No evidence was found on these patches. See comments further in survey for rest of hull.
- e) There are no visible signs of significant damage or repairs to the hull below water line.



f) Moisture readings were taken where the antifouling was removed and also on the inside of the hull in the aft cabin and below the chart table area using a capacitance type moisture meter of Sovereign Quantum type, operating in both shallow and deep reading modes. The meter was first checked for correct calibration.

The readings recorded below are from the meter operating in the shallow and also deep mode on the relative scale 0-100.

The readings are relative and **do not** express moisture content as a percentage of dry weight. High moisture content is not generally a structural defect, and is to be expected in older boats. However where some moisture has been absorbed the likelihood of moisture related problems occurring is higher, and the actual state of the laminate cannot be completely guaranteed without destructive testing followed by chemical analysis. The opinion given in this survey is based on all the evidence available at the time but without destructive testing.

The conditions prevailing when the readings were taken were as follows:

Air Temperature:	13.5°C
Relative Humidity:	18.6%
Time ashore	20 minutes
In summary the weather conditions for obtaining moisture readings were fair	

Readings were as follows:

Meter	Range below waterline.	Range above waterline.
Sovereign Quantum, Scale A, 0-100 Shallow mode	Internal 6 - 9 External 30	Internal 7 External 10 -13
Deep Mode	Internal 8 – 10 External 28 - 32	Internal 8 External 9

The interpretation of the readings in shallow mode range;

- 0 – 15 : For all practical purposes may be considered dry.
- 16 - 20: Some moisture present at low levels but of no great concern.
- 21 - 30: Considered medium, but those at the top of the range i.e 30 are at the point where the risk of moisture related defects developing is significant.
- 31- 45 Considered high and at a level where the risk of moisture related defects being present but not yet physically detectable is significant.
- 46 – 60 Very High and will usually be accompanied by physically detectable signs. Likely to be accompanied by a significant increase when switching to deep mode.



- 61 – 100 extremely high and indicative of possible laminate damage in addition to osmotic blistering. Likely to be accompanied by a significant increase when switching to deep mode.

These readings need to be considered in conjunction with the period the vessel has been ashore and the weather conditions when obtained. As a rule of thumb you can expect the levels to drop by one range after a few weeks ashore.

The difference between readings above the water line (normally dry) and below should be noted.

- g) On the stem of the vessel below the waterline and on the aft edge of the skeg both sides, there are clearly visible pimples (1 -2mm diameter) seen through the antifouling. These were scraped and found to be raised pimples in the white gel coat. I was able to pop one of these on the stem and a small amount of fluid came out. This did not have a smell or taste. On the skeg they broke up and came away leaving white smooth laminate below.
- h) I looked for other pimples across the hull and found two approximately 3mm diameter starboard side forward of the rudder. These were also popped and a small amount of fluid came out although also not foul smelling. These appear to be in the gel coat too.

Advisory note:- It is unusual for boats constructed like this (vacuum) and in Vinylester resin to have pimples /blisters in the hulls. I believe that around the skeg and stem a fairing epoxy has been applied after the hull has been moulded specifically in these places, for the purpose on the skeg to fair it and on the bow to cover a moulding blemish and that it is this layer that has the problems. However that does not explain the two small hull pimples although these could also be fairing. Blisters of this size will not affect the structure of the boat but could affect resale value. They can be treated by cutting out the pimples and filling with epoxy resin and fairing. I would not recommend a full hull strip as the areas are isolated. The external hull readings below the waterline are higher than I would expect compared to the topside and construction but to be fair, the boat was not out of the water very long and I would expect these to come down to allowable levels.

Always storing the boat ashore out of season to allow some natural drying out to occur will contribute significantly to maintaining condition.

4. Topsides above Waterline including Rubbing Strake:

- a) Constructed of FRP with a foam core finished in white gel coat.
- b) Top side moulding found fair with no signs of major damage or impact.
- c) The topsides were lightly hammer sounded and no indication of voids found. Moisture readings were taken and recorded as above.



5. Deck moulding:

- a) The deck is of FRP with a foam core in places. Teak decking is bonded to the surface, again using a vacuum technique and no screws. There is limited access to the underside except in cockpit lockers, aft cabin locker, anchor well and behind navigation station panels.
- b) Moisture readings were taken from underside and recorded 5 shallow and 8 deep mode.
- c) The whole deck was carefully tested underfoot and no sign of delaminating or other structural defect found.
- d) The teak was carefully examined and found in good condition with minimal wear and no separation between teak and caulking.
- e) There are two drainage points either side aft (scuppers). There are no signs of leaks around the underside of these.
- f) There are two aft lockers, with secure lids, the gutters of this drain directly into the locker which in turn drains overboard through the transom.

6. Coachroof:

- a) Integral with the deck moulding and constructed in the same way.
- b) The whole area was carefully tested underfoot and no sign of delaminating or other structural defect found.
- c) There was no flexing of the coach roof area below the mast when the shrouds were flexed.
- d) Hand rails were tested with a lever and found secure.
- e) It was not possible to take Moisture readings due to limited access below

7. Cockpit:

- a) Integral with the deck moulding, centrally fitted with drainage through two adequately sized bronze drains connected by hoses to stainless branch manifold and in turn fibreglass tube. 2 clips used. Outlet was obstructed by lifting strop so could not be viewed. The cockpit sole has a teak grating, with no signs of damage.
- b) Seats have teak faced ply attached again vacuum bonded, which prevents moisture getting into deck through screw holes.
- c) A large cockpit locker starboard side has a secure means of closure, a deep lip to prevent water going in, and the hinges were found sound.
- d) The manual bilge pump is fitted below the teak gratings.

8. Hull/Deck Join:

- a) This is a bonded and mechanical joint. The hull is moulded with a flange which the deck is bonded to with epoxy paste and has wooden toe rail attached with stainless steel screws through the joint. All stanchion bases and pushpit / pulpit are bolted through the joint.
- b) The teak toe rail was found fair and tight to the deck with no signs of significant damage or distortion.



- c) The joint is accessible only in the anchor well and cockpit locker. No leaks were found where seen.

9. Bulkheads and Structural Stiffening including Internal Mouldings:

This is a Monocoque (single box) construction and a number of components contribute to the overall structure.

- a) The shell mouldings are robust in the first place.
- b) The wooden bulkheads are laminated to the hull.
- c) There are longitudinal hollow FRP stringers (box sections) laminated to the hull topsides and hull below waterline.
- d) The floors are robust (Floors in this case are FRP box sections spanning the hull bottom but not continuing full height to deck level).
- e) The various under berth lockers are also bonded to the hull adding to the strength.
- f) The main mast compression loadings are transferred through the deck down a wooden king post sitting atop a floor above the keel. Access to the base was restricted by the screwed down cabin soles.
- g) Bulkheads were carefully hammer sounded near the deck, hull and floors with no faults found.
- h) All possible access was checked, lockers, under berths and the floors and inner mouldings are well bonded with no signs of movement or cracking found.

10. Rudder and Steering:

- a) The boat has Solimar wheel steering; the pedestal is mounted to the cockpit floor. Cables run around pulleys mounted in the engine compartment to the aft below berth area where they attach to the steel steering quadrant. This is bolted to the rudder stock. The rudder tube is laminated to the hull and has a bronze greased bearing atop with grease cap. The rudder is an FRP moulded blade hung from hull and supported by a stainless steel joint (gudgeon and pintal bearing) at the skeg. The blade is made from two mouldings laminated together around a foam core and normally stainless steel frame.
- b) Secondary steering via Raytheon ST6001 quadrant mounted pilot.
- c) Emergency steering is available, the tube and tiller are stored in the heads locker and fit through the deck to the stock. This was not tested.
- d) There is full movement lock to lock. When tested under full body weight on either lock, no gaps appeared at the joins of the rudder.
- e) There is no play in either bearing.
- f) Slight discolouration around top of rudder tube from minor water ingress.
- g) All fittings were hammer tested and found secure. The cables are correctly fitted. The stainless steel rudder stock is magnetic, indicating non marine 316 grade.
- h) Rudder has same coatings as hull. Two patches were removed as per hull. Moisture readings were 16 shallow and 18 deep. This indicates no moisture has penetrated the foam core.



- i) A bow thruster is fitted to assist steering. This was well mounted and seen operating. It is quite noisy in use.

Advisory note: Regularly turn rudder greaser to prevent water ingress

11. Stern Gear:

- a) It is a folding bronze 3 blade propeller, secured with nut and tab washer, on stainless steel shaft running through stern tube bonded in hull, supported outboard end by an FRP "P" bracket bonded into hull with a rubber cutlass bearing outboard end and a Volvo Penta water lubricated lip seal inboard end secured with stainless steel clip. There is a flexi coupling between the shaft and reverse gear box.
- b) Inboard lip seal is secure and a mirror was used to check the underside of the seal clip and no corrosion noted.
- c) Propeller was scraped to reveal shiny yellow metal. It was struck on the blade and edge to check for dezincification, none was found. There is no damage to the blades.
- d) Nut is securely fitted.
- e) There is play in the outboard cutlass bearing.
- f) Shaft is low grade stainless steel (magnetic). Check for crevice corrosion in threads whenever propeller is removed.

Advisory note:- Cutlass bearings should be replaced next time boat is hauled.

12. Cathodic Protection:

- a) There is a hull anode mounted port side, this is partially wasted.
- b) There is a propeller nut anode which is not wasted.
- c) Both anodes were tested for continuity to the propeller, shaft and stern gland. This was confirmed for the prop anode. The hull anode I could not get continuity. I suspect a bonding strap across the flexible coupling is missing.

Advisory note:- Bonding of hull anode to shaft to be investigated and rectified.



13. Skin Fittings and other through Hull Apertures:

Some thru hulls may not be reported below but will be with relevant systems sections. No skin fittings or valves were dismantled as part of this survey but the following routine tests were carried out:

- ✚ Examination from outside and inside the boat. Checked for de-zincification
- ✚ All valves open and closed to their full extent where possible.
- ✚ Any fixing bolts hammer tested where accessible.
- ✚ Bodies of metal valves or sea cocks tested with a hammer inside the boat and external parts hammer tested outside the boat.
- ✚ Fittings aggressively tested inside the boat for security in the hull.
- ✚ Hose clips inspected and hoses aggressively tested for security. 2 clips correctly fitted on outlet spigot unless noted.
- ✚ Lying fair to hull unless noted

Below Waterline:

- a) Head sink drain – Bronze skin fitting with DZR (De Zincification Resistant) valve. Located starboard side, under sole by chart table.
- b) Heads toilet inlet - Bronze skin fitting with DZR valve. Located starboard side, under sole by chart table.
- c) Galley sink drain - Bronze skin fitting with DZR valve. Located port side, galley cupboard.
- d) Heads toilet outlet - Bronze skin fitting with DZR valve. Located in head compartment locker. Labelled holding tank outlet.

Above waterline

- e) Deck drains, bilge pump and tank breather have DZR valves and bronze fittings. Exhaust is stainless steel, no valve. Tank breathers, diesel and water have swanneck fitted and exit at deck level.

14. Main Companionway and other Access to Accommodation:

- a) Companion way hatch is sliding type of wood. Secure in its runners. Washboard is wood with vent that fit in wood runners and will stay in place except in full inversion conditions.
- b) 3 deck hatches, all are Lewmar aluminium framed, perspex cover. Gaskets intact. Secure method of closure with 2 handles that can be opened from outside. Hinged forward except fore hatch which hinges aft.

Advisory note:- Fore hatch should be kept closed at when underway at sea.



15. Ports, Windows etc.:





- a) Various opening Lewmar port lights with hinges atop and catches at base. Gasket fitted to frame. No windows below weather deck. Fixed Lewmar port lights fitted. Windscreen of alloy frame and Metall Glass, Sweden.
- b) All checked, found fair to deck. Opening port lights, portside saloon, the gasket has come away from the frame and is sticking to perspex.
- c) No signs of leaks at any portlight or window. No signs corrosion on alloy frame or fixings.

Advisory note:- Opening port light gaskets should be correctly refitted.

16. Pulpit, Stanchions, Pushpit, Lifelines and Jackstays:

- a) Twin guard rails around deck, in stainless steel, with tensioning buckles. All found secure.
- b) Pulpit, stainless steel. Bolted through deck with large nut and washer below. Secure under full body weight.
- c) Pushpits, stainless steel, bolted through deck with washers underneath. Both secure under full body weight.
- d) Stanchions stainless steel flush on bases are secure under full body weight.
- e) No jackstays fitted
- f) 2 Life line attachment points in cockpit, securely fitted with plates behind

17. Rigging Attachment Points:

-  All attachment points were tested visually with 10 x magnification
-  Nuts and bolts struck with hammer against sheer where possible
-  Checked with magnet for quality of steel where possible
-  Fittings tested with a substantial crowbar on wood block

Unless noted below, no movement found. No sign of seepage via deck fittings.

- a) Main mast shrouds and lowers attachment points. 3 each side deck. Stainless steel plates bolted through deck. Two forward fixings are accessible under deck, Selden bottle screws attached to underside of deck fitting and in turn to stainless steel bracket through bolted forward bulkhead with 8 bolts in sheer.
- b) Main shrouds and aft lowers fittings below deck not at all accessible. They appear to attach to Knees (FRP frames attached to topsides).
- c) Backstay is attached to metal plate bolted in sheer to the transom with 4 bolts. Inside not accessible.
- d) Forestay attached to large stainless stem head, bolted through deck and down stem. Nuts checked in anchor well and found secure.



18. Ground Tackle and Mooring Arrangements:

- a) Main Anchor is 20KG Bruce anchor, securely shackled with swivel joint to 8mm chain. The chain was not laid out on deck or checked link by link, checked in locker only. Bitter end attachment not seen. No warp fitted.
- b) Twin bow roller on stem head, hammer tested and found secure. No pin to stop chain jumping off roller when at anchor.
- c) Adequate mooring cleats and fairleads fore, aft and centre checked with crow bar and found secure.
- d) No secondary anchor seen aboard.
- e) Various warps and fenders aboard in fair to good condition.
- f) Lofrans pillar windlass, 1000W well bolted to deck in locker. Operated not underload up and down.

Advisory note:- Depending on intended area of operation, it is advised that a second anchor is fitted of 7KG, with minimum of 10m of 6mm chain and 10mm rope. Total scope (length) being 46m. This warp can double up as a tow line.

19. Other Deck Gear and Fittings:

- a) Turning blocks and jammers all found of adequate size and securely through bolted, although inspection from under limited by linings. (seen in aft cabin cupboard only)
- b) The Andersen self tailing winches fitted were all tested as far as possible but not under load and found no play on base and were free to turn.
- c) Genoa and main sheet tracks and cars operated correctly. No faults found.

20. Davits and Boarding Ladders:

- a) Vessel has permanently attached stainless steel boarding ladder which extends well below the waterline and is securely attached.

21. Spars:

Mast

- a) Main mast – Twin spreader deck stepped Selden Mast. Aluminium anodised with 9/10th fractional rig set up. Joined (riveted) section at about 2.5m above deck. The mast was stepped so inspection is restricted to fittings and area to head height. No excessive signs of corrosion around base or fittings.
- b) In mast furling is fitted, it was fully unwound and rewound with no issue.
- c) No damage to the extrusion was noted.
- d) Furlex headsail furling system seen free to turn.

Boom

- a) Silver anodised in similar good condition to mast.
- b) Main sheet and kicking strap attachment points secure.



- c) Goose necks no signs of wear at the mast fittings.

22. Standing Rigging:

- a) Rigging could only be checked at deck level. All are 1x 19 wire. Shrouds have alloy cover plates and plastic wire covers.
- b) Rigging was examined where the wire enters the terminals under 10x magnification, no broken strands visible nor excess corrosion seen. The angles they enter the mast appears in line with rigging.
- c) The rigging screws are stainless steel open bodied type with good articulation. Forward and aft are Seleden manufactured, main shroud bottle screws are Hasselfors. Found free from distortion or visible stress cracks, when examined under 10 x magnifications.
- d) Backstay has manual / winch handle operated adjusted fitted.
- e) Forestay has Furlex furling system fitted.

Advisory note:- The plastic rigging covers have degraded in the sun and are brittle and broken in places. Underneath the wires are very dirty. It is advisable NOT to fit tight covers to rigging as it collects dirt and moisture and can cause corrosion at terminals if not kept clean

23. Running Rigging:

- a) Running rigging seen in fair condition for age of boat.

24. Sails and Covers etc:

- a) The genoa is fitted to the furling system and has a UV protecting bag fitted over it that can be unzipped and lowered. The top strap has rotted, leaving the halyard at the top of the mast. The sail was only partially checked because of this and what seen was good. Sample stitching checked with 50p coin (blunt edges) for wear. No signs wear or damage noted.
- b) The main sail is stowed on the inmast furling system. This was unfurled in light wind. Made by UK sail makers, noted original Najad, so presume 6 years old. Sample stitching checked with 50p coin (blunt edges) for wear. No signs wear or damage noted.
- c) Cruising chute in bag in cockpit complete with "Snuffer" tube. Checked in bag, it appears in very good condition, possibly not used. Sample stitching checked with 50p coin (blunt edges) for wear. No signs wear or damage noted.
- d) Beige spray hood and complete cockpit awning on stainless frames. Material and plastic screens in good condition.

Advisory note:- Halyard for genoa sail cover needs retrieving and the cover strap re-stitched and fitted.

25. Navigation Lights:

Vessel fitted with lights of correct size, securely mounted and seen working unless noted.



- a) White on stern
- b) Port and starboard on pulpit. (Port side a bit loose)
- c) Steaming light on mast.
- d) Mooring light at mast head with Tri colour above.

26. Bilge Pumping Arrangements:

- a) Electric bilge pump, 3550 LPH operated from main switch panel – manual or automatic, mounted in main bilge. Not able to test wet as bilges very dry and clean. Heard running.
- b) Manual bilge pump, under cockpit floor and labelled as emergency bilge pump, operated from cockpit and pick up is back of main bilge with bronze strum box (filter and non return valve).
- c) Bilge pumps pipes are of adequate size, securely clipped. Manual bilge pump exit through bronze skinfitting reported in section 13 above the waterline starboard aft quarter.
- d) Electric bilge pump exits through cockpit drain manifold.
- e) Switch panel shows second electric bilge pump. This was not found nor heard to operate. Presume not fitted.

27. Fire-fighting Equipment:

- a) There were the following fire-fighting appliances found onboard.
 - a. 3 x 2KG Dry powder mounted, one under saloon table, in aft cabin cupboard and in cockpit locker. All showing green on gauge but have no dates marked.
- b) There is an access point in the engine compartment to discharge an extinguisher without removing the steps.

Recommendation:- All extinguishers should be serviced after 5 years or replaced which is sometimes cheaper. Fire blanket should be flitted at galley.

28. Lifesaving and Emergency Equipment:

The following was noted aboard

- a) Horseshoe lifebuoy in forward cabin
- b) Liferaft – Alimar manufacturer 6 person Oceanis 354– service due April 2011. Number 05046015
- c) Floating light in box
- d) Buoyancy aids / hard life jackets in forepeak locker. New in bags.

Advisory notes



- The RNLI operate an excellent free inspection and advice service concerning levels of safety equipment (SEA Check) and can be contacted on 08003280600 or via the RNLI website, www.rnli.org.uk.
- The RYA also publishes a booklet, G16, "The Boat Safety Handbook" and this specifies levels of Safety Equipment for different categories of use. Booklet is obtainable from nautical bookshops or direct from the RYA, www.rya.org.uk.

Recommendation - this vessel be equipped with safety equipment to the level appropriate to proposed use.

29. Engine and Installation:

- a) Engine is Yanmar 4JH4E fresh water cooled. Number E007
- b) Engine hour meter shows 173.4 hours. No service records seen.
- c) Engine and bilge is exceptionally clean, no signs of water or diesel leaks, engine paint intact.
- d) Exhaust system is marine grade, well clipped at engine and stainless and rubber hose water trap mounted behind engine, swan neck in engine room to deck level and exits through stainless steel fitting at waterline.
- e) Gear and throttle cables well attached and clipped and operate as intended via control mounted on steering pedestal.
- f) Engine mounts are flexible bolted to moulded engine bearers. Tested with crow bar and found secure. No signs of damage or wear found.
- g) Seawater intake is bronze skin fitting with plastic strainer on hull, DZR valve with metal (bronze?) strainer with bolted on clear lid mounted in the engine compartment, above the waterline and found clear.
- h) Engine compartment is vented via natural and electric fan ventilation, vent hoses run through the lockers and vent through the side decks above weather deck.
- i) Oil in engine was checked and found very clean. Checked again when run and still clean.
- j) Oil filler cap was checked, no signs water in oil.
- k) Reverse gear oil checked and found clean and correct level.
- l) Water in heat exchanger, clean green anti corrosion mixture.
- m) Engine started first time without need for glow plugs and heard running correctly. Exhaust water was clean, no signs smoke or soot deposits. Engine idles at 800 rpm very smooth. Gearbox very quiet and smooth to engage gears. Engine stops immediately with no run on when stopped by button.



30. Fuel System:

- a) Fuel filler is on deck and secure. Stainless steel tank mounted in cockpit locker with access to top also through heads locker. No signs corrosion, checked areas with mirrors.
- b) Fuel tank is vented through hose which is swan necked and through stainless protected vent on aft quarter. Securely clipped. No signs of leaks or smells of diesel
- c) Hoses are ISO 7840. All correctly fitted. When bent they show no signs of perishing.
- d) CAV type primary fuel filter with alloy bowl by engine compartment.
- e) Heater feed take off correctly fitted at tank.

31. Accommodation General:

- a) Cushions in good clean condition.
- b) Interior woodwork in very good order.
- c) Accommodation is ventilated with traditional vents on coach roof, and the galley has opening hatch above the stove. There is other ventilation hatches in saloon and heads.
- d) Bilges are very clean except where noted.
- e) There are no indications, either smell or visible, that the boat is damp..

32. Gas Installation:

This vessel has not been MCA coded. It was built RCD/CE compliant.

Irrespective of the above all gas systems are subject to the checks listed below as part of this survey. Recommendations will be made where there is an obvious serious safety issue and these must be carried out before use. Suggestions will also be made where appropriate to enhance safety criteria, particularly with systems where there is no mandatory requirement to conform to a standard. It must be understood however that some Insurance companies require a declaration from the assured that the gas system conforms to *current* standards and if that is the case here upgrading may be required as a condition of the insurance policy.

Sources of further information:

www.calormarineshop.co.uk/rules-regs-answer.htm Comprehensive information on standards and best practice. www.boatsafetyscheme.com Even if your boat is not required to comply with this standard it contains much sensible advice and the manual can be downloaded.



Gas Observation and action table

Item	Result	Action required.
Condition and efficiency of self draining bottle storage	Bottles are mounted in anchor well just below deck level with drain exiting hull.	
Age and condition of flexible hose at bottle.	Hose is correct type although European marked and has no date. Correctly fitted with pressed fittings. No signs of perishing.	
Age and condition of regulator	Age unknown, no signs of corrosion at all.	
Connection to copper pipe	Correct gland through bulkhead	
Condition of copper pipe where accessible	Very good where seen	
Is pipework adequately supported and not under stress where accessible?	Yes where seen	
Connections and Flexible pipe to cooker and other appliances	Correct glands both ends. Orange gas hose as per at bottle.	
Is cooker gimballed?	Cooker is gimballed.	
Are all appliances fitted with flame failure devices on all burners, and did these work properly under test?	FFD on burners and stove, not seen working.	
Are any appliances requiring flues properly fitted with same?	N/A	
Is a gas alarm fitted?	None seen	Consider fitting gas alarm
Is each appliance fitted with an isolating tap	Cooker yes, locker under cooker and main system is electronic shut off at tank.	
If fitted did leak bubble tester function?	N/a	Consider fitting bubble tester.

Additional Observations:

None

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

33. Fresh Water Tanks and Delivery.



- a) Stainless steel tank below port saloon berth. No access.
- b) Hot water calorifier mounted in aft cabin and heated from engine and AC system. Fittings secure. No signs corrosion.
- c) Pressurised water system with accumulator tank mounted in cockpit locker. All piping seen is secure and well fitted.
- d) Water tank empty so not seen operating.
- e) Transom shower head removed.

34. Heads:

- a) Toilet is a Jabsco PAR ITT, mounted around the water line waterline. Behind are two valve handles for closed, direct to sea or holding tank. The inlet and out valves and skin fittings are reported in section 13 above. No issues noted. I was not able to identify the holding tank. There is only one outlet through hull labelled holding tank outlet. There is a breather outlet through the topsides. If there is a holding tank, and I think there maybe it is not mounted in an obvious accessible place.
- b) Pipes securely clipped to toilet.

Advisory note:- The toilet would not operate, it would not suck sea water in nor pump out. It may be that the valves in the toilet pump have stuck over winter. Some black water came from the toilet pump. Suggest toilet is serviced and advice sought on holding tank and operation of valves.

Advisory note:- it is prudent that hoses are extended to reach below deck level in swan necks so that valves do not have to be always closed at sea to prevent accidental back fill of toilet should toilet valve fail.

35. Electrical Installation:

DC circuits

- a) 12v alternator, charging via electronic isolating diode
 - a. 1 x 12v engine start battery, gel filled, indicator light black, in wooden battery box under aft cabin berth. Vents into engine space.
 - b. 2 x 12v domestic batteries, maintenance free in wooden battery box under aft cabin berth behind engine. Vents into cabin.
 - c. 1 x 12V battery for bow thruster, maintenance free in wooden battery box under aft cabin berth behind engine. Vents into cabin.
 - d. Terminals tight but no insulation on positive terminals.
- b) Isolating switch box under berth and separate small isolator.
- c) 12v wiring is professionally wired and neat and tidy. All circuits appear to go through separate RCD breakers on panel.
- d) Tested battery voltage, with multimeter, all at 12V, when engine running all at 13.2V.



Advisory note:- Advice is to fit terminal covers to positive sides of batteries in case tools are dropped on them and cause short circuit.

Engine would not start when we arrived and had to be jump started from other battery via jump leads. After 30 minutes motoring indicator on battery still black, not green.

240v Circuits

- a) Professionally installed 240V system with lead wired directly to RCD in cockpit locker.
- b) 240V water heater and 2 pin sockets and HI-TEC 12v / 40 amp battery charger mounted behind engine.

36. Electronic and Navigation Equipment:

The following was seen aboard operating

- a) Raytheon ST60 Depth
- b) Raytheon ST60 Log
- c) Raytheon ST60 wind
- d) Raymarine C80 radar and Chart plotter
- e) Ray 240E VHF (not DSC)
- f) Radar reflector
- g) Plastimo Binnacle compass

37. Heating and refrigeration

- a) 12v Isotherm Fridge and freezer in ice box.
- b) Eberspacher diesel hot air heater, well mounted in cockpit locker, exhaust correctly fitted.

Neither tested as broker advised purchaser had operated.



RECOMMENDATIONS and CONCLUSIONS:

Maintenance Overview:

Cosmetic maintenance: Very tidy and clean throughout the boat with minimal marks or damages

Technical Maintenance: Engine is reported to be professionally maintained and its appearance backs this up. All functions and systems were tested as reported above and operated well.

List of Recommendations:

The Recommendations made in the Report are listed below with their respective section numbers. *All Recommendations should be carried out before use of vessel or as stated.*

2. Keel

Recommendation- Lead keel. Based on the evidence above, both the water from the joint and the minor water in the aft bilge, the aft keel studs require tightening to the correct torque and the joint scraped and filled. Check again at next lift but be aware that the keel may have to be dropped at a later date.

27. Fire-fighting Equipment:

Recommendation:- All extinguishers should be serviced after 5 years or replaced which is sometimes cheaper. Fire blanket should be flitted at galley.

28. Lifesaving and Emergency Equipment:

Recommendation - this vessel be equipped with safety equipment to the level appropriate to proposed use.

Conclusions:

When checking in the water, apart from a few minor things this boat is immaculate. On inspection under water the minor blistering and keel joint need to be attended to, to maintain the value in the vessel.