



Marine Surveys UK

"Pragmatic Surveys in Plain English"

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[Yacht surveyor](#), Affiliate member

YDSA, Full member BMSE, MECAL

MCA coding surveyor

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Survey Report no: [REDACTED]

Name of Vessel: "[REDACTED]"

Type of Vessel: Dehler 34, FRP (Fibre reinforced plastic), Bermudian sloop sailing boat.

Type of survey: Pre-purchase and valuation

At the request of:

[REDACTED]

This survey was carried out on [REDACTED] at Sovereign Harbour, Eastbourne, UK, ashore and afloat. 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. A separate valuation has been requested.
- ✚ 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. The engine was run during the survey. 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 and advisory notes:

- ✚ Recommendations will be restricted to those defects which should be rectified before vessel is used, (or within a given time span if specified), and items which may affect insurability. These will not be made concerning cosmetic or other minor defects, although relevant suggestions may be made in the text.
- ✚ ***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.
- ✚ **Advisory notes** are suggestions to prevent a problem getting worse or general advice and do not have to be carried out before the vessel is used nor should affect the boats current insurability.

Conditions of Survey:

Vessel was examined firstly on a cradle and then launched at pre determined time. The survey continued in the water at Sovereign harbour. The weather was fine, the owner was present for all the survey and the purchaser for part.

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.

1. Details of Subject Vessel, (General Description, Dimensions, Registration etc.).
2. Keel.
3. Hull below Waterline.
4. Topsides above Waterline including Rubbing Strake etc.
5. Deck Moulding.
6. Coach roof.
7. Cockpit.
8. Hull/Deck Join.
9. Bulkheads and Structural Stiffening including Internal Mouldings.

Steering, Stern Gear, anodes and Skin Fittings

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

On Deck.

14. Main Companionway and other accesses to accommodation.
15. Ports Windows etc.
16. Pulpit, Stanchions, Pushpit, Lifelines and Jackstays.
17. Rigging attachment points.
18. Ground Tackle and Mooring Arrangements.
19. Other Deck Gear and Fittings.
20. Davits and Boarding Ladders.

Rig.

21. Spars.
22. Standing Rigging.
23. Running Rigging.
24. Sails and Covers etc.

Safety.

25. Navigation Lights.
26. Bilge Pumping Arrangements.
27. Fire fighting Equipment.
28. Lifesaving and Emergency Equipment.

Engine.

29. Engine and Installation.
30. Fuel System.

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:

Built by Dehler Yachtbau Gmbh, Freienohl W, Germany, designed by Van de Stadt and Partners and built to Germanische Lloyds 100 – A4 specification. She is a Bermudian sloop with deep keel. The owner advised this boat belonged to her father and was raced. The owner says they have owned it since 2000.

Manufacturers' information from from websites (not verified by measurement)

Length Overall	10.6m
Length of waterline	8.6m
Beam:	3.4m
Draft:	1.7m
Displacement	4,200kg
Specification	Germanische Lloyds 100-A4 <i>Source plate in boat</i>

Boat specific information

Model	Dehler 'Top' 34 Line 93
Registration	SSR [REDACTED]
Hin Number	DEHDEE [REDACTED] L193 <i>Transom</i>
Boat number	[REDACTED] <i>Plate in cockpit</i>
Year of Build	1993

2. Keel

- a) This is an iron fin keel which sits in a recess moulded in the hull. The vessel was seen sitting in cradle resting on its keel supported by pads. The keel had new blue antifouling paint applied.
- b) The joint around the edge of the top of the keel was filled with sealant.
- c) I was not able to see any gap at the joint. When the boat was lifted in slings, there was no movement at the joint.
- d) Internally it could be seen that the keel is attached with stainless steel studs and nuts. I was able to view 3 pairs of nuts under the cabin sole through an access panel either side but not directly above. One pair of nuts had new gel flow coat applied around them.
- e) Each accessible nut was struck with a hammer and sounded undamaged.
- f) While the boat was sitting in the cradle, there was a 3mm deflection in the hull directly aft of the keel going aft 170mm. When the boat was lifted this deflection came out.



- g) There was no signs of cracking or debonding in the boat aft of the keel that I was able to see, although the sole boards are screwed down and give limited access.



Hogging aft of the keel

Advisory note: It is not unusual for FRP boats to be affected by hogging (deflect inwards) slightly when sat on their keel as they are not designed for this.

3. Hull below Waterline:

- a) Construction of the hull below the waterline is FRP with a balsa core sandwich. (I could see that the hull was cored and the website confirmed it was balsa).
- b) The hull had a new coat of blue antifouling. The owner advised that the P bracket had been replaced. The hull around had no evidence of this externally but internally a neat finish has been made and flow coated.
- c) Light hammer sounding was carried out (not heavy enough to damage the anti-fouling) of the hull at regular intervals approximately 500mm spacing all over.
- d) The antifouling was removed in 24 patches approximately 50mm x 50mm at random around the hull below the water line. While scraping I was looking for evidence of wicking or blistering and once removed all patches were checked with 10x magnification.
- e) When scraping the antifouling which came away easily, I found below in some areas just grey primer, in others grey primer over another layer of grey and green which I believed to be epoxy layers although the owner had no record of this. In some areas below the two layers of grey and green was a bright copper coloured primer.
- f) There were no signs of major damage or repair noted at any of the areas scraped and hammer sounding did not locate any.
- g) Moisture readings were taken where the antifouling was removed 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:	16.7°C
Relative Humidity:	47.7%
Time ashore	3 months
In summary the weather conditions for obtaining moisture readings were good	

Readings were as follows:

Meter	Range below waterline.	Range above waterline.
Sovereign Quantum, Scale A, 0-100 Shallow mode	12 -17 with 2 areas in the same position either side near the keel of 20 -24	9 – 12
Deep Mode	10 -18 with the same areas as above 25 -26	7 – 10

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.

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.



Advisory note:- For a 18 year old hull the readings were very good particularly with a balsa core. 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 in the same way as the hull and finished in white gel coat.
- b) Top side moulding found fair, (without major distortion). There are numerous small gel scratches and gel repairs.
- c) Port aft quarter on the transom edge has possibly been repaired but the finish is very good, no other signs of major damage or repairs.
- d) The topsides were lightly hammer sounded and no indication of voids found. Moisture readings were taken and recorded as above.
- e) The aluminium and rubber rubbing strake is not part of the strength of the hull and deck joint (see below). There were no signs of serious damage or repair noted. The starboard aft section has been reattached at some stage indicated by self tapping screws seen from inside the locker area.

5. Deck moulding:

- a) The deck is of cored FRP, again with balsa end grain core. Aluminium bearers are laminated into the deck under load bearing deck fittings. (*Source - internet and lack of nuts under cleats and other items*). The deck is white gel coat and most of the deck is covered with moulded non slip pattern.
- b) The whole deck was carefully tested underfoot for signs of delaminating or other structural defects. Moisture readings were taken where the deck was flat enough to do so which was not in many places.
- c) The gel coat has faded to off white and has signs of UV or acid rain degradation in the form of black spots and the non slip has been over painted blue/grey.
- d) Minor creaking was heard around the starboard genoa track in line with the aft window, this indicates slight delamination of the deck but it is very minor. Moisture readings here were 10 shallow and same deep.
- e) Moisture reading at the starboard chain plate was 19 shallow / 24 deep indicating minor water ingress around the deck here.
- f) There are cracks around the heater exhaust which is on the starboard aft quarter deck area. These are caused by heat from the exhaust and flexing when the chimney is in place.

Advisory note: The deck should be able to be brought back to white but using marine gel coat cleaner / T cut and polished to a good shine. The cracks around the heater exhaust should be sealed to prevent water ingress into the deck and core. Ideally I would move the exhaust to a more suitable place like the top of the transom, however another option is to reinforce the area around the exhaust below deck, line with fire tape, clean out and fill the cracks on deck with epoxy filler / gel and then refit the exhaust. In the mean time, keep the cracks well



waxed. The area around the chain plate should be similarly waxed or the chain plate removed and resealed.

6. Coachroof:

- a) Constructed as part of the same moulding as the deck and finished in the same way. The non slip has not been over painted.
- b) The whole area was carefully tested underfoot for signs of delaminating or other structural defects.
- c) Hand rails were tested with a lever.
- d) The shrouds were flexed hard to see if there was any movement around the mast base and moisture readings were taken. Moisture readings around the mast base were 11 deep and shallow and there was no movement noted.

7. Cockpit:

- a) Constructed as part of the same moulding as the deck and finished in the same way.
- b) There is a deep locker to starboard, with a flat lid and minimal lip. The locker lid has a rubber gasket to prevent water entering the locker and a secure method of closure.
- c) Drainage of the cockpit is via the large open transom area and out under the transom door which hinges at the bottom and opens aft. This is securely attached and has secure method of closure.
- d) The cockpit sole was tested under foot for stressing and none found.
- e) Seating area has plastic imitation teak covering.

8. Hull/Deck Join:

- a) The hull and deck join is laminated. Websites advise they are joined while still in their moulds while resin is still green to create a strong chemical joint.
- b) There are no signs of leaks or damage to the joint where viewed in the anchor locker and cockpit locker.

9. Bulkheads and Structural Stiffening including Internal Mouldings:

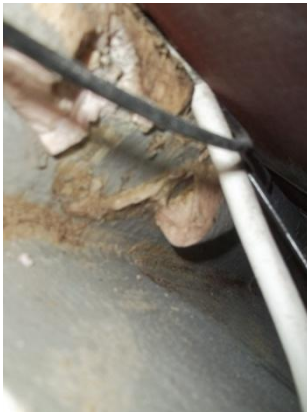
This is a Monocoque (single box) construction and a number of components contribute to the overall structure.

- a) The hull and deck mouldings are robust in the first place and are chemically bonded. There are a number of longitudinal and transverse floor beams laminated to the hull moulding and laminated knees under the deck at the rigging attachment points.
- b) The mast loadings are transferred through the deck down a metal post (kingpost) that sits atop a transverse floor directly above the keel.
- c) Bulkheads were carefully hammer sounded near the deck, hull and floors for signs of debonding.



- d) All possible access was checked; lockers, under berths and the floors and inner mouldings, for signs of delamination and cracks with camera and personally where possible.
- e) The base of the forward bulkhead has come debonded in the lowest section, visible in the forward bilge area. The area aft is not visible due to screwed down cockpit sole.
- f) The port side saloon berth front furniture (plywood) has moved from the aft of the forward bulkhead, evidenced by flow coat cracking. This is not a structural point.
- g) The base of the mast king post was only visible with a camera. The picture shows what looks like some dezincification around this area or what could be a crushed floor.
- h) The port forward locker has broken flow coat, this is more of an impact. If I had seen this when the boat was out of the water I would have wanted to check the hull for stress cracks in the same place. There are no signs of leaks.

Advisory note: There has been some movement of forward bulkhead at its lowest point but the sides are still bonded as far as I can ascertain.



Floor under kingpost



Furniture shift



Delaminated bulkhead



Locker



Recommendation: The cabin sole should be lifted to check the base of the king post where it sits on the floors. This may be over zealous filling but it is out of character to the rest of the smooth bilge.

10. Rudder and Steering:

- a) The rudder is a semi balanced blade FRP moulded around a stainless steel stock with bearings at the top and bottom of the stock.
- b) The rudder tube is aluminium bonded into the hull and extending above the waterline. The top of the stock is supported by an alloy frame work bolted to the cockpit. There are no webs supporting the base of the rudder tube, just flared laminate.
- c) Steering is wheel with rod connections to the stock. These are below a screwed down panel and were not able to be accessed during the survey. The FRP cover has a crack at the aft end by the rudder stock.
- d) There is a short wooden emergency tiller which fits directly onto the stock.
- e) An Autohelm ST4000 wheel pilot was in the locker and the operational head at the binnacle.
- f) The rudder was leant on with full body weight in either direction and turned fully to port and starboard. 4 areas were scraped of antifouling as per the hull and moisture readings taken. The blade was hammer sounded for delamination.
- g) The steering is free until the final part of lock to port and starboard where it is stiff. The rudder is not fouling the hull.
- h) There is minor play in the bush and spindle of the wheel.
- i) The moisture readings on the blade were 15 – 20 shallow. On deep they were 19 at the top and 26 lower down. This would indicate some moisture has entered the rudder, probably into the foam or balsa core. This is not unusual for a rudder of this age and not excessive. When hammer sounded there is hollow sounds around the forward port and all over aft port side.. This is not the sound of delamination of fibre glass but the fact the rudder is hollow.
- j) The owner advises that roller bearings were fitted to the binnacle in 2003, and rudder bearings in July 2010 and March 2011.

Recommendation: Further investigation on the stiff steering is required as we need to be sure it won't jam hard over. Firstly remove the cover plate and disconnect the rudder from the wheel and operate the rudder with the hand tiller to isolate if the issue is with the rudder stock/bearings or the wheel system. If it is the rudder then it could be bearings or bent stock, one clearly more serious than the other.



Advisory note: I found the following comment on a web forum about the Dehler 34 *"A thing any prospective purchaser should note however is that the rudder must be dropped regularly and the nylon bearing cleaned - otherwise it can jam solid. Remember the rudder floats, so the stainless to alloy top ring can be initially loosened with bringing the boat ashore, and once out, the bearing can be cleaned with a sandpaper brush on the end of a long drill extension, then a very light grease should be applied."*

11. Stern Gear:

- a) Propeller is a two blade "Flexifold" folding prop which appears brand new. The owner advised a new P bracket has been fitted as the last was slightly bent. The P bracket contains a rubber cutlass bearing. The propeller is on a stainless steel shaft, the stern tube is moulded into the hull and a Volvo Penta lip seal is clamped on the inboard end.
- b) The propeller was well greased and I could not see the main fixing nut as behind the mechanism.
- c) There is play in the cutlass bearing of about 1mm. The P bracket appears to have been well installed as noted above.
- d) The shaft was tested for quality and found to be magnetic which indicates that it is a lower quality SS. The issue with this is that crevice corrosion occur on threads so they should be carefully checked.
- e) The stern gland was checked underside with a mirror and the clamp struck with a hammer and found secure although there are some signs of corrosion stains around the FRP.

Advisory note: Cutlass bearing should be replaced at next opportunity.

12. Cathodic Protection:

- a) There is no hull anode as designed and one shaft anode. A new anode has been fitted, which in my view is too small for the propeller size, especially in Sovereign harbour which is known to have high electrolysis problems. The recommended conservative size of anodes for a boat this size is 3.6lbs. The boat also has a drop over the side anode which is wasted (heavily worn).
- b) There is a galvanic isolator fitted in the shore power circuit to protect the boat a little more when on shore power.





Advisory note: Replace drop over side anode and ensure it is used when ever in harbour.

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 below water line on outlet spigot unless noted.
- ✚ Lying fair to hull unless noted
- ✚ Protected by valve or swan neck or similar

Below Waterline:

- a) Galley sink drain – yellow metal skin fitting and elbow with silver coloured ball valve. Markings could not be seen.
- b) Engine seawater intake – Bronze skin fitting with silver ball valve and yellow metal elbow. Markings not identified.
- c) Log – plastic through hull
- d) Depth plastic through hull
- e) Heads basin – Yellow metal skin fitting, silver coloured ball valve with yellow metal elbow.
- f) Toilet sea water inlet - Yellow metal skin fitting, silver coloured ball valve with yellow metal elbow.
- g) Holding tank outlet - Yellow metal skin fitting, silver coloured ball valve with yellow metal elbow.

Above waterline

- h) Holding tank breather – on water line, yellow metal skin fitting and elbow, no valve.
- i) Exhaust pipe outlet – Yellow metal skin fitting.
- j) Diesel breather – chrome bronze on starboard cockpit coaming outboard.
- k) Water tank breather – port side cove line, chrome skin fitting.

Important note: There has been evidence recently that ball valves, skin fittings and hose connectors used by boat builders and supplied as after sales by chandleries are made from forged brass to the European standard CW617N. Whilst these valves are in very common use,



ordinary brass such as this is subject to dezincification in seawater.

The ISO standard relating to metallic valves and skin fittings below the waterline, ISO 9093-1, only requires the valves and associated fittings to have a service life of 5 years in terms of corrosion resistance.

The valves and fittings here passed all the tests described above but I am unable to confirm the material they are made from although I am fairly confident they are DZR.

The through hull fittings to which the valves are attached did not show signs of dezincification when scraped back bright externally and are thus assumed to be DZR or bronze.

Marine insurer Navigators & General has advised boaters to regularly "check, service and repair or replace seacocks, or any part of the watertight system connected to it that may put the vessel at risk" to ensure any future claim is not denied.

Below are all the under water metal skin fittings in this vessel at 10th June 2011.



Clockwise from left – Galley, Heads, holding tank breather, toilets.



14. Main Companionway and other Access to Accommodation:

These were all checked;

- ✚ to be lying fair to the deck
- ✚ fixings were randomly tested with screw driver for tightness
- ✚ frames checked for damage
- ✚ a secure method of closure
- ✚ correctly fitted hinges
- ✚ glazing checked for damage
- ✚ gaskets checked

All found ok unless noted. The hatches were not hose tested for leaks.

- a) Companion way – Sliding Perspex hatch with Perspex single washboards and 2nd set wooden washboards. Lock on washboard and lanyard to hold in place at sea.
- b) Forepeak hatch – Lewmar alloy frame, hinged forward, 2 catches to close. Perspex crazed.
- c) Infront of mast 2nd hatch, hinged aft, Lewmar alloy frame, 2 catches to close.

Recommendation: All hatches should be closed at sea, attention drawn to hatch infront of mast as hinges aft.

15. Ports, Windows etc.:

The same checks as section 14. above were carried out. All found ok unless noted. The ports and windows were not hose tested for leaks.

- a) 4 Lewmar opening portlights, alloy frame, Perspex glazing, on coach roof. All Perspex glazing is crazed and some cracks.
- b) 2 Fixed alloy framed Perspex windows on coach roof. All Perspex glazing is crazed.
- c) 3 Lewmar opening portlights, alloy frame, Perspex glazing into cockpit. Glazing ok. The rubber around the aft cabin hatch into the cockpit is loose and has been tried to be stuck back with silicon.

Advisory note: I know that Lewmar in the 1990's offered replacement glazing for crazed hatches as it was a fault. It would be worth writing to them to see if they will do the same now or give a deal on replacements.

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

These are tested under full body weight where practical, terminal ends checked, type of wire tested. Life line attachment points are tested with a crow bar levered against a wooden block.

- a) Stainless steel pulpit which is step through type for easy bows too mooring and push pits with twin wire guard rails. Stainless steel stanchion posts fit over post on bases bolted through deck. Bolted through deck with large nuts below
- b) 2 layflat life line attachments in cockpit, backing plates behind.
- c) Jackstay attachments points on deck, U bolt type. Tape jackstays in cockpit locker.
- d) Minor corrosion on pulpit nuts in anchor locker noted.



Advisory note: It is good practice to buy new jackstays when changing boats as the history of used ones is unknown.

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) Forestay, stainless steel plate bolted through deck to chainplate attached to bow.
- b) Backstay, 2 U bolts through transom with backing plates.
- c) Stainless steel deck plate with tang welded to top, bolted through deck with 4 bolts in tension to 2x L section stainless steel frames bolted in sheer through Plywood Knee laminated to hull. There are corrosion stains around the deck plate and on the knees but the chain plate supports below are un-corroded leading me to believe they have been replaced.

Advisory note: It would be prudent over the 1st year to draw some of the shroud deck bolts and knee bolts to check the threads for corrosion.

18. Ground Tackle and Mooring Arrangements:

- a) 25lb CQR in anchor locker, attached to 8mm chain and 18mm warp. The chain was not laid out and checked link by link but was randomly checked and found in good condition. An alloy stem head with twin plastic rollers is bolted to the deck.
- b) The shackle between anchor and chain is corroded but secure. The bitter end was seen attached. The pins in stem head to prevent chain jumping off the rollers are missing.
- c) Mooring cleats are mounted and screwed through the deck and aluminium plates laminated in deck. (Not visible, info on websites)
- d) No other anchors seen aboard.

Advisory note: Depending on the area of operation a second anchor of 5KG with minimum 10m x 6mm chain and 10mm rope of total length 36m is advised which can double as a toe 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.
- b) The 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 below the waterline and is securely attached.

21. Spars:

- a) Mast is Silver anodised, single spreader fractional rigged, single section extrusion.
- b) The mast is deck stepped and was stepped so inspection was limited to what could be accessed and seen from deck. Rivets and fixings were checked for corrosion. The mast sighted for straightness. No faults found.
- a) Boom is also silver anodised and same checks carried out. There is minor electrolysis on the outside of the gooseneck fitting.
- b) Spinnaker pole was well scratched but straight and the parrot beak piston clips worked.

22. Standing Rigging:

- a) The shrouds are 8mm Dyform with roll formed terminals with OS open bottle screws. The forestay is 7mm 1 x 19 wire with roll formed terminals and fully articulating joint at deck. The single back stay is 5mm 1 x 19m with mechanical tensioned dividing to two.
- b) Rigging was examined where the wire enters the terminals under 10x magnification, no broken strands visible. The angles they enter the mast appears in line with rigging.
- c) There is some surface corrosion on the shroud terminals and the outer shrouds have split plastic covers which hold dirt and accelerate corrosion.
- d) The rigging screws are stainless examined under 10 x magnifications except where noted.
- e) The owners details provided state the standing rigging was all replaced in 2005. No receipts seen.

23. Running Rigging:

- a) Running rigging is in good condition for age and clearly some has been replaced. The halyards were not checked above deck level.

24. Sails and Covers etc:

- a) The sails were all stored in bags below and the purchaser advised he was checking them during sea trial following the survey so they were not examined in detail.

25. Navigation Lights:

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

- a) White on stern
- b) Bi colour on bow – Lens is cracked.
- c) Steaming light on mast.
- d) Mooring light at mast head
- e) Tricolour above anchor light – lens showing white, suspect cracked.
- f) Compass light – not working



Recommendation – Replace Bi colour lens. Tricolour check at night if showing white and if so replace lens. Compass light to work when using at night.

26. Bilge Pumping Arrangements:

- a) Manual whale type pump mounted in cockpit, strum box pick up in bilge, discharges through transom inside of transom cover. Skin fitting has signs of dezincification.
- b) Operated dry, clips seen and secure.

27. Fire-fighting Equipment:

The following was noted aboard

- a) Fire extinguisher 600g BC Powder 13B – no date
- b) Fire extinguisher 2KG ABC 13A 72B rated powder – dated 2010 – expires 2015
- c) Fire blanket under galley sink
- d) Orifice in engine compartment to discharge extinguisher.

Advisory note: No regulations cover private sea going vessels. Advise mounting fire blanket above galley for quick use not stored in locker.

28. Lifesaving and Emergency Equipment:

The following was noted aboard

- a) Horse shoe life buoy
- b) Floating light – batteries not checked.
- c) Danbouy with light – not checked.
- d) Throwline

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 a 2GM20 Raw water cooled marine diesel engine. Number [REDACTED]. Engine hours recorded as 1265.
- b) Engine is generally clean, no significant oil leaks or water leaks noted.
- c) The engine is rubber mounted. 4 Flexible mounts are bolted to FRP engine bearers. The mounts were examined and tested with a crowbar. The aft two mounts are bent



- downwards at the aft end, not excessively. The front port mount is newer than the others. There is corrosion – rust around the aft mounts which has gone into the engine bilge.
- d) The water system is direct to engine through the skin fitting and valve described above. There is no siphon break fitted in the sea water line and exits through the exhaust at the elbow manifold. There is no seawater strainer fitted.
 - e) The shaft is connected to the reverse gear via a flexible coupling.
 - f) The engine was started by the yard staff on launch and started almost immediately. There was some black smoke which went as soon as throttled back. I also started the engine from cold and then from hot. It starts with minimal throttle and leaves no soot on the water and does not smoke excessively. Water quickly came through the exhaust in good quantities. Tick over seems a bit slow causing vibration in the boat. The forward and reverse gears engaged and the control operated correctly.
 - g) The engineer came aboard to service the engine as the surveyor left.

Advisory note: The bent aft mounts are ok to use and are normally caused by the shaft being pulled back by a rope or similar around the prop. I have a slight concern that the P bracket has been replaced may have been lined up to the engine which will have been bent downwards. The concern may materialise when new mounts are fitted although there is a lot of thread on Yanmar mounts and the flexible coupling may take up the difference.

30. Fuel System:

- a) The stainless steel fuel tank is mounted in the cockpit locker, away from the bilge. The filler is directly above through the deck and the breather nearby. There is a fuel shut off valve on the tank isolating both the engine and the heater. Copper pipes take the fuel to and from the engine and joined to Steel braided ISO 7840 marine fuel hose securely clipped via a primary fuel filter and water trap with glass bowl mounted behind the engine.
- b) There is minor corrosion on the braiding of the fuel hoses.
- c) No signs of any diesel leaks. No corrosion noted on the tank which was closely inspected where visible and with camera below.

31. Accommodation General:

- a) She generally feels dry however in the locker behind the heads, the side lining is heavily stained. I believe this is an old leak from the cockpit locker.
- b) The side lining on the port side is also stained; the owner explained this was from a blocked water tank breather now fixed.
- c) There are no hatch vents and the owner mentioned the holding tank condensates regularly when the heater is used.
- d) Cushions appear generally in good order.
- e) The purchaser advised that the sink was chipped which was not checked by the surveyor.

32. Gas Installation:

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



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	Gas bottle stored in open locker in the transom area with drainage direct overboard.	
Age and condition of flexible hose at bottle.	Hose is marked 2001	<i>Replace hose at bottle as more than 5 years old.</i>
Age and condition of regulator	Fair	
Connection to copper pipe	Good Correct gland through cockpit	
Condition of copper pipe where accessible	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	Good.	
Is cooker gimballed?	Yes with crash bar fitted.	
Are all appliances fitted with flame failure devices on all burners, and did these work properly under test?	Cooker fitted with FFDs . No gas in bottle to test.	
Is a gas alarm fitted?	Not seen	
Is each appliance fitted with an isolating tap	Yes, in locker in aft cabin	
If fitted did leak bubble tester function?	Not fitted.	



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) Plastic Water tank mounted under port saloon berth, with filler directly above. Pressure pump mounted below sink. Cold water only. No hot water system fitted.
- b) No leaks seen. Pump is very slow and pressure low.

34. Heads:

- a) Toilet is manual Jabsco sea water flush. Waste pumps directly to stainless steel holding tank mounted behind heads furniture. Tank empties by gravity through skin fitting described in section 13 above. Tank has breather / overflow on water line. Diameter 18mm.
- b) The clips on the hoses were found tight. The hose from the holding tank to the outlet skin fitting is a bit stained. There are mild corrosion stains running from the top of the tank which is out of view and mild corrosion stains around the breather.



Holding tank stains



Stains from top of tank

Advisory note: It is my view that the tank will have an inspection hatch on the top with a gasket and that this has leaked or is leaking when the tank is full. The holding tank breather / overflow is smaller diameter than the exit. This means that if the tank is over filled the breather will not cope well and the tank will pressurise. Comments on the internet at www.dehlerowners.co.uk suggest leaking holding tanks is a common issue and they are hard to remove. (Plus they are a heavy item to carry around on a race boat with many plastic alternatives available).



35. Electrical Installation:

DC circuits

- a) Two separate batteries, 60AH engine start under aft cabin berth and 100AH domestic under saloon berth. Both securely fitted in plastic boxes and strapped down with covers for the terminals.
- b) Wiring appears original with all going to switches and RCD's at switch panel and each battery have separate isolators.
- c) The alternator charging is boosted by a *Sterling Marine Power* advanced regulator.

240v Circuits

- a) A shore power lead is hard wired (no plug and socket) in the anchor locker, this runs to a German control panel with RCD and UK socket below.
- b) A 240V battery charger is mounted under the chart table delivering 20Amps with a 180 amp starterboost.

36. Electronic and Navigation Equipment:

The following was seen aboard operating

- a) Wind direction and speed - Raytheon ST 60
- b) Depth sounder - Raytheon ST60
- c) Log - Raytheon ST60
- d) Multi display repeater at chart table - Raytheon
- e) Binnacle compass - Silva- light not seen operating
- f) VHF DSC – Icom IC-M411
- g) Weather data- Furuno Navtex NX-300 – no data
- h) GPS – Furuno GPS Navigator

37. Heating and refrigeration

- a) Eberspachter hot air diesel heater. Securely mounted, exhaust through deck with portable chimney provided. Seen operating.
- b) Super cool electric cold air chiller mounted in ice box. Turned on.



RECOMMENDATIONS and CONCLUSIONS:

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.*

9. Bulkheads and Structural Stiffening including Internal Mouldings:

Recommendation: The cabin sole should be lifted to check the base of the king post where it sits on the floors. This may be over zealous filling but it is out of character to the rest of the smooth bilge.

10. Rudder and Steering:

Recommendation: Further investigation on the stiff steering is required as we need to be sure it won't jam hard over. Firstly remove the cover plate and disconnect the rudder from the wheel and operate the rudder with the hand tiller to isolate if the issue is with the rudder stock/bearings or the wheel system. If it is the rudder then it could be bearings or bent stock, one clearly more serious than the other.

14. Main Companionway and other Access to Accommodation:

Recommendation: All hatches should be closed at sea, attention drawn to hatch in front of mast as hinges aft.

25. Navigation Lights:

Recommendation – Replace Bi colour lens. Tricolour check at night if showing white and if so replace lens. Compass light to work when using at night.

28. Lifesaving and Emergency Equipment:

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

32. Gas Installation:

Replace hose at bottle as more than 5 years old.

Conclusions:

For a 1993 boat she is in good condition. There has clearly been a few knocks and bangs but nothing too serious and repairs have been made. There is no attempt to bodge over anything. If when the cabin sole is lifted the area under the king post is found to be crushed, the repair should not be hugely expensive and it may not turn out to be this anyway. Again, worse case with the steering, if the rudder stock had to be straightened it is but hugely expensive relative to the value of the boat. A good boat at the right price.