Marine Surveys UK

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Survey Report no: [redacted]

Name of Vessel: "[redacted]"
Type of Vessel: 1993 Steel Narrow Boat, Tug Style
Type of survey: Pre-purchase

At the request of:

[redacted]

This survey was carried out on [redacted] at Aldermaston Wharf, Padworth, Reading, Berkshire, RG7 4JS, UK. 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 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 load.
- 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 advice may be made in the text.
- 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.
- ***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 on the water and on wooden blocks on Aldermarston Wharf with access to the base plate except where blocks were positioned. The hull was not pressure cleaned and the base plate was covered in Mussel growth.

No special conditions affected the survey other than as described in the text, the vessel was lifted for a period of 2 hours to do the underwater survey.

The report will be written in plain English avoiding terminology that will not be fully understood by the client.

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. Hull below Waterline.
3. Topsides (Hull) above Waterline
4. Deck / Coach roof (top of vessel)
5. Structure - Bulkheads and Structural Stiffening

Steering, Stern Gear, and Skin Fittings etc.

6. Rudder and Steering.
7. Stern Gear.
8. Cathodic Protection.
9. Skin Fittings and other through Hull Apertures.

On Deck.

10. Main Companionway and other Accesses to Accommodation.
11. Ports Windows etc.
12. Mooring Arrangements.

Safety.

13. Bilge Pumping Arrangements.
14. Fire fighting Equipment.

Engine.

15. Engine and Installation.
16. Fuel System.

Accommodation and onboard Systems.

17. Accommodation General.
18. Gas Installation.
19. Fresh Water Tanks and Delivery.
20. Heads.
21. Electrical Installation.
22. Heating & Refrigeration

1.Details of subject vessel:

The vessel is a steel constructed narrow boat, designed in Tug boat style. Made of mild steel plate, fully welded. Paperwork aboard states the vessel was constructed by R and E engineers, Camber. First registered in 1993 although I cannot confirm this.

Manufacturers' information from BSS certificate aboard, not verified by measurement

Length Overall:	62'
Beam:	6'10"

Boat specific information

Registration	[redacted] - Registration plate displayed in window
Year of Build	Hull was built in 1991. (Quotation for paint work seen)
Boat Safety Scheme	[redacted] Examined 29th January 2011 – Certificate seen
Engine	Lister 4 Cylinder Diesel

2. Hull below Waterline:

a) The only access to the inside of the hull below the water line was a small re-moveable panel in the aft cabin area. A camera was inserted in here and pictures taken. They reveal dry rust areas only, with no signs of moisture. This was only an area some 800mm square to view. The other area that could be checked internally was the engine compartment, which was painted out in grey "Hammerite" metal finish, smooth , with no signs of moisture ingress at all. The rest of the vessel has a wood, possible oak flooring laid restricting any access.

b) The bottom of the vessel is made of 10mm mild steel flat base panel, welded to 6mm side panels, these are welded in sections. The welds clearly visible.

c) The vessel was supported on wooden blocks when examined ashore. There are no signs of distortion on the base. The side panels are slightly distorted from the original welding at construction.

d) There is no evidence of repairs from welding or welding plates. (Doubling) on either the base plate or side of hull.

e) The base plate is not painted, this is normal for flat bottom canal boats. The sides were originally painted with Rust-Oleum protective coating. This was a two pack system. The boat yard advised that this had been over painted in the past. The paint is very well bonded to the metal.

f) The vessel base plate was covered in mussels. These were removed in 10 patches at random and also where there appeared to be corrosion. The surface was scraped back to solid metal surface. Using a Cygnus Ultra sonic meter, which was first calibrated to a

15mm test block, readings were taken at the areas scraped. The readings were 9.75mm towards the front of the vessel and 10 towards the back. Some of the areas had pitting which was measured with a calliper to be a maximum of 1mm beep. The largest being 18mm wide. Lloyds allow for 30% degradation on plates over 6mm thick, so these pits are well within that tolerance. If the vessel is hauled again at any time then it is suggested that the base plate is scraped and the pits filled with weld.

g) The side of the vessel below the water line was heavily fouled on the port side (left facing forwards) and less so on the starboard (right facing forwards) side. The port side being exposed to the sun when moored up. The fouling was easily removed with a sharp file end. No paint came away when scraped except where noted below. Readings were taken in 18 patches each side approximately 800mm apart just above the waterline, an area most affected by wind and water and susceptible to corrosion. The readings on this 6mm plate were 5.95mm to 6mm, indicating minimal or no degradation of the steel. A further 18 patches each side were checked , these just above the base plate, directly below the water line test patches. There were no readings to give concern, the lowest being 5.6mm in one place only. No paint was damaged or lifting in any of the test places.

h) Light hammer sounding was carried out (not heavy enough to damage the paint) of hull at regular intervals approximately 500cm spacing all over to identify any areas of thinner metal. No areas were noted

i) On the starboard side, just below the access doors there are some 4mm diameter pits, 0.25mm deep in the steel below the paint. These were scraped and found solid metal easily. These are probably caused by water getting under the paint through a pin prick hole.

j) Under the stern of the vessel (back end), where the vessel is flat above the propeller area, readings were taken and recorded at 5.8mm, again acceptable tolerance.

Advisory Note:- Any areas of flaking or bubbling paint should be scraped back to bare metal and treated with a rust prohibiting paint before being sealed with suitable metal paint. If the scraping were to go through the steel then the corrosion is being caused inside out.

3. Topsides (Vessel sides) above the Waterline including Rubbing Strakes:

a) Topsides are a continuation of the Hull plates reported above. The welds are vertical and clearly visible. These are painted with the same system as reported above and all found in good condition, random readings taken showing 6mm.

b) The rubbing strakes (fendering) at the bow and stern are welded top and bottom. When struck with a hammer, no signs of degradation noted.

4. Deck / Coach roof – Top of vessel:

a) The top of the vessel is 4mm flat plate, welded, some distortion noted clearly visible from original construction. This is painted with many layers of protective paint. On the coach roof, there are some areas, approximately 5, where paint has chipped and corrosion is lifting the paint. These areas are clearly visible.

See advisory note section 2.

b) The aft deck area has no signs corrosion.
c) The forward deck was hammer tested and no signs corrosion. The drains are clear at the aft end.
d) In the gas locker forward, which has a steel cover, securely hinged forward with high lip around, the lower drains have been blocked off with rubber covers. The upper drains are clear. Under the rubber mat below the gas bottles, there are large areas of corrosion, caused by standing water. Sections were scraped to solid metal and readings taken. The readings were 4.3mm. I suspect that the plate was originally 5mm.

   See advisory note section 2 and remove the rubber cover from the drain to allow free drainage. Also, periodically check under the rubber mat and keep dry.

e) The rest of the deck is solidly constructed with no signs of corrosion noted when checked.

5. Bulkheads and structural stiffening:

There was no access to the inside of the hull except where noted above. The aft bulkhead is securely welded with no signs of distortion.

6. Rudder and steering:

a) Single blade rudder of solid steel 10mm plate welded to a steel shaft. It is supported by a skeg (steel bar extending from the base plate to the rudder). The rudder shaft enters a steel tube, welded through the hull. There are bearings top and bottom of the tube. These were both found secure. The base of the rudder in the shaft has a lot of play but allows for growth to avoid fouling.
b) The steel tiller is shaped traditionally and no faults were found. There was full movement port to starboard.
c) There is an electric bow thruster mounted in the bow. The tube being securely welded with no faults found. The thruster appears home made, with a car starter motor fitted to the top. There is a dedicated battery for this with solenoids and relays. I was not able to operate the thruster which is operated from the helm position. The owner advised that it only operates one way. The battery terminals are not protected from accidental shorting and the battery is not secured in position.

Advisory note:- Do not rely upon bow thruster for steerage in any kind of current or cross wind. Use traditional means. If the thruster is to be kept, the battery should be strapped in place and terminals covered.

7. Stern Gear:

a) 3 Blade bronze propellor, secured on shaft by single bronze nut, held in place by split pin.

b) Propeller blades were scraped and found in good condition with no pitting or discolouration. The nut and pin are secure.
c) The bronze stern tube is bolted into the hull. The bolts were struck and found secure.
d) There is no play in the shaft and it turned smoothly.
e) There is an Aqua seal type flexible coupling securely bolted to the steel frame work. A stern gland with remote greaser is bolted to the structure. The copper pipe feeding the grease to the gland is bent slightly and weeping grease. There are no signs of water ingress through the gland.

8. Cathodic Protection:

a) 6 anodes were bolted to the hull, two forward, two aft and two recessed amidships all just above the base plate flange. The studs are welded to the hull. The nuts all checked with a hammer.

Advisory Note:- All anodes are partially wasted. They were reported fitted 3 years ago and have used probably one 3rd. They should be good in the same environment for 2 more years but check them regularly.

9. Skin Fittings and other through Hull Apertures:

a) The exhaust, two sinks and bilge pump all have bronze or yellow metal of some type skin fittings. Access to the inside was only possible for the exhaust and bilge pump which were found secure. All were well above the waterline. They were hammer tested externally and found secure.
b) There is a weed trap box mounted above the propeller in the stern. This was not opened up. It was well sealed internally with a rubber seal. Best practice is to open and inspect this periodically with the bow of the boat weighed down to prevent water entering.

10. Main Companionway and other Access to Accommodation:

a) Main access into deckhouse saloon through two wooden doors with glass. Glass is Storma AS6206 B/L . Ventilation panels in the doors. Locks are secure.
b) Steel side hatch, not lined with lift up lid, Locks securely from the inside.
c) Aft doors, are steel and lined with wood. They lock securely from the inside. A sliding metal hatch pulls across. It is lined and secure on its runners.
d) Aft cabin hatch is plastic with acrylic glazing. This had mild steel bolts fitted through the lens which are not standard and are rusty. The woken plinth on which it sits was spike tested and found soft in places with the paint peeling.

Advisory Note: Wood should have paint removed to solid area and the wood dried and treated. If rotten a new piece may need to be cut in.

11. Ports, Windows etc.:

a) Aluminium framed windows on either side with sliding or top vents. The glass is single pane, No sign of toughen glass. There are signs of green growth around some of the sliding window gaskets. No leaks noted and no corrosion on frames.
b) There are round port lights aft, no signs leaks.

12. Mooring Arrangements:

a) Steel posts fore and aft, securely welded. The boat contains bank spike anchors, hammer and ropes. No anchor located. Only required for River work.

13. Bilge Pumping Arrangements:

a) A 500 gallons per hour (GPH) electric bilge pump with automatic float switch is mounted in the stern area. A second 500 GPH electric pump with float switch is mounted forward of the engine below the stems. Both float switches were raised and pumps operated. They can be operated on a switch too.
b) No bilge alarm fitted
c) No bucket on rope seen

Advisory note:- Consider fitting bilge alarm and carry rubber bucket with rope.

14 . Fire-fighting Equipment:

a) There were the following fire-fighting appliances found onboard.
    a. 2KG powder extinguisher in saloon. No date, Green on gauge. Appears new.
    b. Fire blanket mounted in galley
    c. Fire smothering blanket in cupboard in galley.
    d. 2KG powder extinguisher in galley dated 1998 last serviced 2001.
    e. CO2 in engine compartment operates from handle mounted in engine panel area. Last serviced 2001.
    f. No smoke detectors were noted.

Recommendation.- Although this vessel has passed its Boat Safety Scheme, The requirement for extinguishers for this size boat is 3 with combined rating of 21A. There are the correct number but unless proof is noted that they have been serviced, the two out of date should be serviced or replaced.

Advisory Note: It is strongly advised to fit smoke detector in the aft cabin if sleeping on the boat.

15. Engine and Installation:

Engine is a Lister Petter LPWS4 40 Hp, number 40006178L PWS4A042. Hours indicated on meter 1820.

a) This is radiator cooled with sealed coolant system. There was a minor leak on the hose from radiator to engine. The header tank was at the correct level and antifreeze was present in the coolant.

b) There is a minor amount of oil / diesel in the self contained bilge. The engine was examined with mirrors to access difficult areas. There are no obvious signs of oil leaks.
c) Engine oil level is correctly between the high and low marks, is fairly clean and free from obvious contaminants.
d) The exhaust is well mounted and insulated.
e) Engine mounts are rubber, bolted to metal engine bearer. Mounts were tested with crowbar and found secure.
f) Engines started after a few turns without heaters. There was some grey smoke at start up but this dissipated once running. No knocking or undue vibrations heard or felt.
g) The engine alarms stay lit until the engine is rev'd up. As they are all like this, charging, oil and temperature, I would suggest this is a current problem rather than an engine fault. The morse control operated smoothly and was well secured.
h) Engine stop pull did not operate easily and I had to stop the engine on the fuel cut off lever directly. This needs adjusting.
i) The engine room is painted grey with no signs corrosion and ventilated through grill in cabin sole and doors.

16. Fuel system:

a) Diesel tank is integral with the transom area. There are no signs of corrosion noted. It is filled from above and filler is secure. There is a shut off gate valve in the copper feed line at the tank. Correct ISO 7840 diesel hose is fitted for the connection from filter to engine and return to tank. No signs of leaks were noted.
b) CAV metal bowl water trap and filter mounted in engine compartment.

17. Accommodation General:

a) The interior is lined with wood. Solid wood cabin sole, plywood side panelling and covered ceiling.
b) Area under the forward steps, small stowage area, has damp on wall paper covering. Advisory note:- suggest put vent in sliding door to allow air to circulate.
c) There are adequate hand rails and lighting
d) 5 vents in the coach roof allow adequate ventilation.
e) TV not tested.

18. Gas Installation:

This vessel has been recently inspected for Boat safety scheme

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.boatsafetyscheme.com 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 locker with drain over side	
Age and condition of flexible hose at bottle.	BS3212 fitted in good condition	
Age and condition of regulator	Age unknown. good condition no signs of corrosion	
Connection to copper pipe	Gland correctly fitted	
Condition of copper pipe where accessible	Seen in locker no signs corrosion	
Is pipework adequately supported and not under stress where accessible?	Could not access	
Connections and Flexible pipe to cooker and other appliances	Could not see cooker connections.	
Are all appliances fitted with flame failure devices on all burners, and did these work properly under test?	4 Burners no Flame Failures fitted, Grill not fitted. Oven is fitted with FFD, tested ok.	Consider changing cooker for one with Flame failure devices on burners and grill.
Are any appliances requiring flues properly fitted with same?	Yes, gas hot water heater	
Is a gas alarm fitted?	Yes – but when tested with gas, did not alarm and test function does not work.	***Replace gas alarm.***
Is each appliance fitted with an isolating tap	Yes for Valliant Water heater, not seen for cooker.	

If fitted did leak bubble tester function?	N/a	Consider fitting bubble tester.

Additional Observations:

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

19. Fresh Water Tanks and Delivery.

a) Water tanks is integral in bow of vessel. Deck filler secure. Delivers via electric pressure pump mounted in small locker under entrance steps next to accumulator tank to hold pressure.
b) Valliant Hot water boiler in cupboard in dinette area, piping is all modern push fit type. Calorifier (Tank) is heated from engine and boiler and possible to plug into 240V immersion. Mounted securely in cupboard with boiler. Cupboard is vented.
c) All taps were turned on. Water ran clean. Toilet cold water tap would not work.

20. Heads:

a) Toilet is a Traveller Fresh water flush mounted directly over holding tank which is pumped out from deck filler and has flush.

21. Electrical Installation:

12v circuits

a) Engine alternator charges 3 x 110ah Freedom batteries. These are fitted in a wooden tray and vent directly into engine compartment. Terminals are not protected from accidental shorting.
b) Battery isolators in positive side only.
c) As noted above Bow Thruster has separate battery, charged by engine.
d) All wiring appears neat and tidy, all circuits have RCD breakers.
e) A coach roof mounted solar panel tops up directly.

240v Circuits

f) 240v Shore power point in cockpit with correct leads in locker. Professionally installed RCD's for circuits alongside domestic fuse box.
g) Sockets in cabins, Water heater, Marine battery charger
h) Invertor mounted in engine compartment.
i) No shore power available to try out.

22. Heating and refrigeration

a) 240V front opening fridge. Not seen working and could not access wiring to check if 12V too.

b) Stovax Wood burner with metal flue, well mounted. Incorporates back boiler, with small electric pump, feeds radiators. Pipe all securely fitted. Not seen working.

Advisory note:- Electric pump wires are not secure although pump us mounted well out of reach under cupboard.

RECOMMENDATIONS and CONCLUSIONS:

Maintenance Overview:
Cosmetic maintenance: Clean and tidy, helm area a bit worn. Wood work good, exterior generally good with minor work required.
Technical Maintenance: Appears professionally maintained.

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.***

14 . Fire-fighting Equipment:
Although this vessel has passed its Boat Safety Scheme, The requirement for extinguishers for this size boat is 3 with combined rating of 21A. There are the correct number of extinguishers but unless proof is noted that they have been serviced, the two out of date should be serviced or replaced.

18. Gas Installation:
Replace gas alarm.

Conclusions:

A well constructed well maintained vessel requiring a few safety items which is surprising considering it has just passed its BSS