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'Narrowboat'

Pre-Purchase Survey

Report Date:

Survey Date:

Place of Survey:

Vessel name: Narrowboat

Vessel Type: Cruiser Stern Narrow Boat

Builder:

Client

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I. Terms & Conditions

Terms & Conditions

This Survey was carried out under the Yacht Designers and Surveyors Association current Terms of business which were e-mailed to the client prior to the survey.

Limitations

- We have not inspected woodwork or any other parts of the structure which were covered, unexposed or inaccessible and we are, therefore, unable to report that any such part of the structure is free from defect.
- 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.
- Where repairs, further opening up, or dismantling are required, additional decay, damage or necessary work may be uncovered.
- The engine, tanks and other normally installed mechanical equipment were in situ which limited inspection and examination in these areas.
- A Cygnus 4 multiple echo ultrasonic thickness gauge was used to determine plating thickness. This instrument uses repeat echoes to differentiate between coatings and metal. It is used to assess point thickness at regular intervals and more frequently where corrosion is suspected in conjunction with a visual examination. However, it is unlikely that localised pitting will be found by this method if it is otherwise concealed.
- The vessel was out of the water during the survey. This survey is unable to ascertain the water tightness of the vessel.
- The vessel was not surveyed with respect to any particular code of standard or navigation body's rules or bylaws unless specifically stated. No documentation or compliance with any regulations has been checked as part of this survey. No guarantees or warranties are given or implied with respect to the vessels suitability or fitness for purpose.
- This report has been prepared for the use of the commissioning client and no liability is extended to others who may see it.
- The vessel had not been UHP washed prior to survey, and no comment can be made on parts of the vessel which were covered by marine grass/growth and layers of bitumen coating.
- The vessel was found resting on a hauling trolley and no comment can be made of the hull where the trolley pads obscured inspection, as visual and physical inspection was not possible in these areas.

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.
- The survey is not a parts and labour guarantee and it should be noted that defects may exist in the vessel that the survey could not detect due to limitations of time, vessel presentation and the range of tests acceptable to the owner.
- Please note that where reference is made to condition, in all cases this must be considered in relation to the vessels's age, for example: very good condition should not be taken to mean new condition.
- A general inspection of the engine, installation and systems will be made, but this is a visual inspection only and an item has only been operated if stated. It should be appreciated that some components may appear serviceable but be found defective when run under load and for a prolonged period.

Recommendations

- 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 are listed at the end of each section, labelled with priorities as listed below:*
- **Dangerous:** Items which must be repaired prior to the vessel being re-floated or used for habitation/navigation. Vessel deemed uninsurable with this issue.
- **Urgent:** Items which are not classed as dangerous, however, should be repaired preferably prior to the vessel being re-floated or used for habitation/navigation. Vessel deemed an increased risk for insurers with this issue.
- **Priority:** Items of repair should be carried out as soon as possible. Repair should be carried out no later than within six months. Vessel only insurable with restrictions or safety precautions.
- **Caution:** Items would require monitoring and further investigation. Repair may be required within the next twelve months.
- **Advisory:** Items are advised for safety or maintenance. These do not pose an insurance risk to the vessel.
- **Recommendations will be printed in blue, for quick reference. The recommendations are contained in the body of the report in order that they may be read in context.**
- *Suggestions will be printed in italics as they do not constitute a requirement. Suggestions are this surveyors opinion only, and can be looked on as 'helpful advice' to preserve the craft for the long term or improve handling and comfort.*

II. Details of Subject Vessel

'Narrowboat' was reported as having been built in 1997. She was found on the hard in Surrey.

She was a cruiser stern steel narrowboat with a flat bottom plate. The swept bow included a fabricated stem post and the stern is of a semi-square counter style with horizontal uxtor (counter) plate and flared swim plates. The deck and cabin are of welded mild steel. The internal fit out is of timber & plywood construction.

Length Overall: 57' 0" (17.37m)

Beam: 6' 0" (2.08m)

Draft: ~2' 00" (0.60m)

Engine: Mermaid (Ford)

Year of construction: 1997

CRT number:

Boat Safety Scheme number:

Builders number: Not seen

Owners manual: Not seen

Certificate of conformity: Not seen

**Above taken from various sources, not checked unless specifically noted.*

III. Legislation & Ownership

Note: The inspection is not undertaken with any intention to ascertain that the vessel would comply with any rule or code of practice, as may be required by any authority under whose jurisdiction the vessel may be operated. It carries no warranty regarding ownership of the vessel or any warranty regarding outstanding mortgages, charges or other debt there may be on the vessel.

No documentation was seen onboard the vessel at the time of survey.

Boat Safety Scheme

A BSS certificate was found onboard the vessel at the time of survey, however, the name of the vessel on the BSS was 'Rock n Roll Soul' BSSER-349726/18. Please be aware that the existence of a Boat Safety Scheme certificate does not imply that the craft is safe. A BSS certificate only indicates that, on the day of the inspection, the craft had met the requirements for the licensing with the Navigational Authority concerned, with a view to minimising the risk of fire & pollution and its effect on other vessels. BSS inspections are required every 4 years.

Suggestion: Inland waterways boat owners are advised to download a full copy of the Boat Safety Scheme guide from www.boatsafetyscheme.com and keep it on the vessel for reference.

Note: Alterations and improvements should be made to the manufacturers installation guidelines, but should also comply with the Boat Safety Scheme essential guide.

- Recommendations - Advisory: Clarifying the status of the BSS certificate seen onboard the vessel at the time of survey as the name of the vessel differed.

V.A.T Status & Proof of Ownership

The original invoice for the vessel was not found onboard therefore there was no evidence that United Kingdom V.A.T had been paid. There was no proof of ownership found onboard the vessel.

British Waterways Registration

A British Waterways licence number was found on the side of the vessel 502529 and was checked with the Canal & River Trust and found the vessel not to be registered. Registration would require updating and formal display with any change of ownership.

Recreational Craft Directive

The vessel was reported to have been built before the 16 June 1998 and therefore the vessel does not need to comply with the requirements of the Recreational Craft Directive (RCD). No HIN number, CE plate or instruction manual were seen onboard the vessel at the time of survey.

- Recommendations - Advisory: Requesting all additional paperwork and corroborating paperwork be produced prior to the purchase of the vessel.

IV. Condition Report

1. Hull Deck

The Hull, Deck, Cabin Structure and associated equipment were visually inspected, and the hull above and below the waterline was sample hammer tested and reported below. Any defects found are noted below, along with advice or recommendations.

Hull Thickness Measurements

A Cygnus 4 multi echo ultrasonic thickness meter was used to measure sample plate thickness. The meter was calibrated before use.

Thickness testing was of a sample nature targeting suspect locations around the hull. Over 180 readings were achieved and these showed an acceptable level of consistency.

Pitting testing was of a sample nature targeting suspect areas of pitting around the hull. A digital veneer caliper which measures down to 0.01mm was used. The meter was calibrated before use.

Base Plate

The base plate had not been ultra high pressure washed prior to survey, and no comment can be made of the base plate where visual inspection was obscured due to marine grass/growth or where the vessel rested on trolley pads. Thickness measurements were taken at meter intervals along the edges and centre line and gauged the mild steel plate to be between 8.7mm & 9.1mm. Some limited evidence of blacking with a bitumen type paint was noted, and where seen this was found to no longer be offering good overall protection of the base plate. The presentation of the vessel did not allow for a full visual inspection for pitting to be made, however, where coupons of marine grass and growth were removed for thickness measurements to be taken no pitting was seen. Hammer soundings returned an acceptable level of consistency and where welds were cleaned back these were visually inspected and hammer sounded and found to be continuous and fair.

Internally, inspection of the base plate was limited to the area within the engine compartment. The engine compartment base plate had been covered in a plastic grip matting which did not enable a clear visual or physical inspection of the base plate. No standing water was noted to be present within the engine compartment base plate at the time of survey.

- **Recommendation - Advisory:** Externally the vessels base plate should be cleaned thoroughly prior to a suitable marine paint system being used to minimise future diminution and pitting. The use of a bitumastic paint system 'blacking' or an epoxy primer should be considered for longer term protection.
- *Suggestion: Water on the interior of a vessel can cause considerable damage over time. If left untreated it has been known for vessels to corrode from the inside out, often seen in the form of significant damage to the inner base & uxter plate. Adding inspection hatches into the cabin sole floor throughout the interior of the vessel, which could be left open when the vessel is not in use, can help to increase the air flow throughout the vessel and help keep the base plate dry.*

Uxter Plate

The uxter plate had not been ultra high pressure washed prior to survey, and no comment can be made of the uxter plate where visual inspection was obscured due to residual marine growth. Thickness measurements found the mild steel plate to be between 8.7mm & 9.6mm. Some evidence of blacking with a bitumen type paint was noted, however, this was found to no longer be offering good overall protection of the uxter plate. The presentation of the vessel did not allow for a full visual inspection for pitting to be made, however, where coupons of marine grass and growth were removed for thickness measurements to be taken no pitting was seen. Hammer soundings returned an acceptable level of consistency and where welds were cleaned back between the edges of the plates at the swim, these were visually inspected and hammer sounded and found to be continuous and fair.

An internal inspection of the uxter plate within the vessel was severely limited by batteries resting on the plate and internal fixtures and fittings. Where visual inspection and hammer soundings were possible, painted coatings were noted to no longer be offering full protection. Areas, to both port and starboard, forward of the weed hatch, presented with corrosion to the mild steel, noted where painted coatings no longer offered adequate protection.

- Recommendation - Advisory: Externally the uxter plate should be cleaned thoroughly, prior to a suitable marine paint system being used to minimise future corrosion and pitting. The use of a bitumastic paint system 'blacking' or an epoxy primer should be considered for longer term protection.
- Recommendation - Advisory: Where access allows, corroded areas of the internal uxter plate should be cleaned back prior to being treated with a rust inhibitor, and protective coatings applied.

Side Plates

The side plates had not been ultra high pressure washed prior to survey and no comment can be made of the side plate where visual inspection was obscured due to residual marine growth. Thickness measurements were taken above, at, and below the waterline and these found the mild steel plate to be between 5.2mm and 6.2mm. Evidence of blacking with a bitumen type paint was noted, however, this was found to be no longer offering good overall protection of the side plate. The presentation of the vessel did not allow for a full visual inspection for pitting to be made, however, where coupons of marine grass and growth were removed for thickness measurements to be taken, no pitting was seen. Hammer soundings returned an acceptable level of consistency and where welds were cleaned back between plates, and at the foot, these were visually inspected and hammer sounded and found to be continuous and fair.

The topsides were noted to be in good serviceable condition with only minimal scuffing to the blacking noted. Topside coatings on the whole were still considered satisfactory and offering longer term protection.

The vessel carried three 50mm 'D' section steel rubbing strakes welded from the stem to the 2.73M mark; a second from the stem to the 3.00M mark; and a third from the stem to the aft transition. The vessel also carried a 50mm 'D' section quarter rail running around the stern of the vessel, starting from the 13.75M mark. These were all visually inspected and hammer sounded and found to be secure with the topsides and undersides of the 'D' sections welded continuously along their full lengths which is considered best practice.

- Recommendation - Advisory: The side plates should be cleaned thoroughly prior to a suitable marine paint system being used to minimise future corrosion and pitting. The use of a bitumastic paint system 'blacking' or an epoxy primer should be considered for longer term protection.

Weed Hatch

The weed hatch was set into the uxtter plate and positioned above the propeller with reasonable access. The weed hatch lid was removed and the tunnel and lid visually inspected, hammer sounded and found to be serviceable, with limited surface corrosion to the interior of the tunnel noted. The anti-cavitation plate was secure and serviceable. The substantial tightening clamp fastened securely down on the top flange and was found to be secure and serviceable. The sealing gasket was visually inspected, however, noted to be mostly perished and in need of replacement. The seam of the weed hatch wall and uxtter plate were only partially visible due to limitations of access. Some mild corrosion was noted where the weed hatch butted the uxtter plate and on the top of the outer tunnel. The height of the weed hatch was measured to be 270mm above the counter plate and therefore at the height associated with best practise.

Note: The BSS advises for privately owned boats to have a secure and watertight weed hatch which reaches to at least 150mm (6ins) above the waterline, when the boat is loaded up as normal.

2. Hull Internal Structure

Access Note: Access to the bottom plate, side shell, and main deck structure were severely limited by way of the accommodation due to the presence of floorboards, linings and cupboards.

Access to the internal hull structure of the vessel was severely limited by fixtures and fittings. Access to the internal structure was possible from within the engine compartment which allowed inspection of the aft bulkhead. This was visually inspected and hammer sounded and noted to be serviceable with only limited signs of corrosion noted. Painted coatings were generally intact and offering satisfactory overall protection.

No ballast in the form of concrete slabs or otherwise was noted at the time of survey.

- Recommendation - Advisory: Adding inspection hatches throughout the interior of the vessel, which can be left open when the vessel is not in use, to increase the air flow through the vessel and also monitor for water beneath the cabin sole.

3. Decks

The aft steering deck was visually inspected, and found to be fabricated in 4.0mm mild steel. The condition of the mild steel lifting hatch was found to be serviceable, raising and lowering, with ease. Painted coatings were noted to be in good serviceable condition offering good overall protection. The same was true of the deck either side of the hatch. The supporting structure was visually inspected from within the engine compartment and was serviceable.

The foredeck and forewell was visually inspected, and found to be fabricated in 4.0mm mild steel. The condition of the mild steel was found to be serviceable with painted coatings noted to be in good serviceable condition offering good overall protection. Inspection of the supporting structure was severely limited. Where visual inspection was possible from within

the vessel some mild corrosion was noted. The two boxed seats either side of the forewell were covered with plywood tops which had fully delaminated and were no longer serviceable.

The side decks were visually inspected, hammer sounded and thickness gauged and found to be of 6.0mm mild steel. The paintwork on the side decks was in good serviceable condition, with painted coatings offering good overall protection, with no significant chips noted.

- Recommendation - Advisory: The two boxed seating areas either side of the forewell should be recovered with treated marine plywood and coated with exterior paint coating to prevent similar future delamination.

4. Cabin & Covers

The cabin structure was visually inspected, hammer tested and thickness gauged and found to be of 4.0mm mild steel. The cabin top and sides were found to be in good serviceable condition. The paintwork on the cabin top and sides had been finished in dark blue coatings. These were in a serviceable condition, offering good overall protection to the sides and cabin top.

Hand rails were integral to the cabin top. These were visually inspected and hammer sounded and found to be in sound and in good serviceable condition, with painted coatings serviceable and offering good overall protection.

The well deck did not have a cratch cover. The aft deck had a simple over cover which was visually inspected and found to be in a good quality marine type fabric and serviceable.

5. Rudder & Steering

The rudder plate had not been ultra high pressure washed prior to survey. The rudder plate was visually inspected, hammer tested and thickness gauged and found to be of 6.1mm mild steel plate welded to a shaft and supported at the bottom end on a skeg. Some minor play was noted in the heel pintle. The rudder stock passed cleanly through the rudder tube. A full visual examination of the rudder tube was not possible where it passed through the diesel tanks. Full and free movement of the rudder was confirmed with the rudder making contact with the hull at the full extent of its turn. The removable tiller arm extension, pin and locking nuts were visually inspected and found to be secure and in good serviceable condition.

The bow thruster tube had not been ultra high pressure washed prior to survey. The thruster tube and guards were visually inspected and were in good serviceable condition. The tube was visually inspected and thickness gauged to be of 6.1mm mild steel. The tube was visually inspected where possible for pitting and none was noted. The bow thruster was tested and found to be serviceable.

- Recommendation - Advisory: The rudder plate should be cleaned thoroughly, prior to a suitable marine paint system being used to minimise future corrosion and pitting.
- Recommendation - Advisory: The bow thruster tube should be cleaned thoroughly, prior to a suitable marine paint system being used to minimise future corrosion and pitting of the tube.

6. Propeller & Stern Gear

One unmarked 480mm three bladed fixed pitch yellow metal propeller was fitted. The propeller was visually inspected, hammer sounded and scraped. No signs of impact damage were noted to the tips of the propeller. No dezincification of the propeller was noted when scraped back, and the propeller rang true when hammer sounded, and was securely fastened to the shaft by means of a locking nut and pin.

The stainless steel propeller shaft was found in good condition, with no pitting noted. Upon turning, the shaft was found to be straight with no play noted in the cutlass bearing when tested under the surveyors weight. The shaft alignment was visually good, and the stern gland was of a grease lubricated type. A remote mounted greaser was noted securely mounted above the engine compartment hatch and was serviceable with grease being delivered to the packing gland by means of a nylon tube. No leaks were noted from the stern gland at the time of survey, before or after the engine was seen running in the water.

- **Recommendation - Advisory:** The stern gland should be monitored and if found to drip excessively whilst the shaft is engaged and despite grease having been added, the packing within the gland should be replaced.

7. Cathodic Protection

The vessel featured two pairs of 2.5kg, and one pair of 1.5kg sacrificial anodes fitted to the hull side shell by way of welded straps. Two at the bow, two at the sides and two at the swim. These were hammer tested and found to be secure. As listed below:

Bow -> Stern (m)			
Port	Original Weight	Wasted %	Recommendation
0.50	~ 2.5 KG	~ 20%	Serviceable
8.50	~ 1.5 KG	~ 80%	No longer considered serviceable
15.00	~ 2.5 KG	~ 20%	Serviceable

Bow -> Stern (m)			
Starboard	Original Weight	Wasted %	Recommendation
0.50	~ 2.5 KG	~ 20%	Serviceable
8.50	~ 1.5 KG	~ 80%	No longer considered serviceable
15.00	~ 2.5 KG	~ 20%	Serviceable

Note: Sacrificial anodes on steel narrowboats in fresh water help to protect only a limited area around each anode, with little or no benefit to the majority of the underwater hull. Care should be taken to use anodes of the appropriate material for the mooring location; zinc for salt water, magnesium for fresh water & aluminium for brackish water.

- **Recommendation - Advisory:** The anodes along the sides of the vessel should be removed and three additional pairs be welded at equidistance intervals to both sides of the vessel.

8. Through Hull Apertures

The following above waterline overboard discharges from the accommodation and engine bay were noted.

Bow -> Stern (m)				
Port	AWL	Function	Type	Condition
0.80	500mm	Water tank breather	Welded pipe	Serviceable
0.95	150mm	Gas locker drain	Hole	Serviceable
2.20	150mm	Deck skupper	Hole	Serviceable
16.23	210mm	Exhaust	Welded pipe	Serviceable

Bow -> Stern (m)				
Starboard	AWL	Function	Type	Condition
0.95	150mm	Gas locker drain	Hole	Serviceable
2.20	150mm	Deck skupper	Hole	Serviceable
7.70	170mm	Galley sink drain	Welded pipe	Semi Serviceable
10.00	220mm	Bath/Shower drain	Welded pipe	Serviceable
10.25	210mm	Unidentified	Welded pipe	Serviceable
10.37	160mm	Bathroom basin drain	Welded pipe	Serviceable
13.22	190mm	Hot water tank drain	Welded pipe	Semi Serviceable
14.74	130mm	Not in service - bunged	Welded pipe	Not Serviceable
15.60	410mm	Not in service - bunged	Welded pipe	Not Serviceable
16.10	600mm	Webasto Exhaust	Stainless	Semi Serviceable
16.22	360mm	Aft deck skupper	Welded pipe	Serviceable
16.25	360mm	Aft deck skupper	Welded pipe	Serviceable
16.27	200mm	Bilge pump	Welded pipe	Serviceable

These were installed as brass, bronze or plastic through hull fittings with threaded internal spigot, or formed by a tube welded to the side shell and a pipe attached, which can be considered good practice. Each discharge was hammer tested, and scraped externally and inspected internally where accessible which was not possible with a number of fittings obscured by fittings and fixtures.

Where inspection was possible most were found to be in a serviceable condition, however, a number were found not to be in service and presented as capped off or open.

- **Recommendation - Priority:** The starboard through hull fittings which are not in service and bunged, but not fully capped off, should be properly capped off prior to navigation. This should be by means of a capped off ball valved through hulls or by means of a piece of mild steel plate welded over the exterior opening.

- Recommendation - Priority: The Webasto exhaust was noted to not be securely affixed to the cabin sides and should be affixed prior to the heating unit being used.
- Recommendation - Advisory: The galley sink and hot water drain tank welded pipes were noted to be significantly corroded. These should be closely monitored and may require replacing within the the next 12-24mths.
- Recommendation - Advisory: All through hull apertures should be securely fastened to hoses using a hose clamp at either end where practically possible. Where through hulls are below the Canal Boat Association recommended 150mm height, hoses should be looped up to deck level where practically possible.

Note: The Canal Boat Association guidelines recommend 150mm of freeboard under any opening in the side shell to prevent down flooding.

9. Access to Accommodation

The aft entrance was visually inspected and found to be by way of double doors and a sliding hatch. The exterior doors were fabricated from mild steel with dark blue painted coatings the same as the top sides and were in good serviceable condition. The interior doors were fabricated with wood inlay. The doors and hatch locked by means of a pad lock, which was seen at the time of survey, and was serviceable. Some water damage to the wood was noted around the upper inner hatch seal.

The side doors with lid were set to port and were fabricated from mild steel with dark blue painted coatings the same as the top sides and were in good serviceable condition. The interior doors were fabricated from wood inlay. The lowest point of the interior wood was noted to be suffering from water damage. The doors, together with the lid, were seen to be serviceable. The doors and lid locked by means of latches and were seen to be serviceable.

The forward entrance was visually inspected and found to be by way of split wooden barn style doors. The doors were fabricated from wood with glass inlaid windows, with varnished coatings. The doors locked by means of latch locks which were seen to be serviceable.

- Recommendation - Advisory: Hose testing all doors and hatches to determine water tightness.

10. Windows & Ports

The windows were a combination of large and medium sized golden framed alloy top hoppers and a number of fixed port holes. These were visually inspected and found to be in serviceable condition. Window gaskets were found to be in place and serviceable. There were no signs of water damage around the inner frames. Cabin walls exhibited no damp or water damage.

- Recommendation - Advisory: Hose testing windows & hatches to determine water tightness, and change seals as necessary.

11. Stanchions/Taff rail

No taff rail was noted around the aft of the steering platform.

12. Mooring Arrangements

No kedging anchor, chain or warp were noted onboard the vessel at the time of survey. No mooring pins were noted onboard the vessel at the time of survey. On the bow, a T-shaped mild steel mooring bollard was visually inspected and hammer tested and found to be secure. On the stern, two mild steel mooring bollards were noted which were visually inspected and hammer tested and found to be secure. On the cabin top a mooring hoop was noted, visually inspected and hammer tested and found to be secure. A number of mooring lines and fenders were seen onboard the vessel at the time of survey, and found to be in serviceable condition. A button fender on the bow was noted to be securley affixed on its chains. On the stern a button fender was also noted securley fastened on its chains.

- Recommendation - Advisory: Procuring anchor, chain and warp and mooring pins for this size of vessel prior to extended navigation.

13. Navigation Lights & Horn

A tunnel light and horn were noted onboard the vessel at the time of survey. Neither the tunnel light nor the horn were seen in service at the time of survey. Port and starboard navigation lights were noted securley affixed to the outer forward cabin walls. The port light was not serviceable, the starboard was serviceable.

- Recommendation - Advisory: Seeing the tunnel light, horn and port navigation light in service prior to extended navigation.

14. Bilge Pumping Arrangements

An electric bilge pump was sat in the sump beneath the stern gland. The pump was switch tested, however, not seen or heard to be serviceable, and no water was seen expelled over the side. No float switch was noted.

- Recommendation - Priority: Seeing and hearing the bilge pump to be serviceable with water seen expelled over the side of the vessel prior to the vessel being used for navigation.

15. Fire Fighting and Emergency Equipment

The fire fighting and emergency equipment onboard the vessel was as follows:

Position	Fire Fighting item	Weight (kg)	Code	Condition
Saloon	Powder Fire Extinguisher	1kg	8A 55B C	Serviceable, securley attached
Galley	Powder Fire Extinguisher	1kg	8A 55B C	Serviceable, not securley attached
Aft cabin	Powder Fire Extinguisher	1kg	8A 55B C	Serviceable, securley attached
Aft cabin	Powder Fire Extinguisher	1kg	13A 70B C	Serviceable, securley attached
Galley	Fire Blanket	-	BS6575	Serviceable - not securley attached
Saloon	Smoke Alarm	-	-	Serviceable - securley attached
Aft cabin	Smoke Alarm	-	-	Serviceable - securley attached
Galley/Saloon	Carbon Monoxide Alarm	-	-	Serviceable - securley attached

- Recommendation - Priority: Fire extinguishers should be regularly checked for serviceability.
- Recommendation - Priority: Smoke and carbon monoxide alarms should be regularly tested for serviceability.

Carbon monoxide poisoning is a considerable hazard and there have been a number of accidents caused by faulty gas appliances, inadequate alarm system and inefficient flues or lack of ventilation.

16. Engine & Installation

The engine was visually inspected and started and was briefly seen running during the survey. The engine turned over by means of an electric starter which was serviceable. The following checks were carried out:

Part	Results
Engine Type	Mermaid (Ford)
Engine Hours	3040.2 hrs
Engine Mountings	Visually inspected & hammer tested and found secure
Exhaust	Found to be secure, and fully lagged
Sump Pump	Visually inspected and serviceable
Fluid Levels	Oil fluid at correct level
All Drive Belts	Visually inspected and visually serviceable
Alternators	Visually inspected and visually serviceable
Hoses/Pipes	Visually inspected and visually serviceable
Engine Cooling	Visually inspected and visually serviceable

The overall visual condition of the engine was clean with painted coatings offering good protection. The engine was in serviceable condition on the day of survey. No diesel was seen leaking at any of the connections or at the primary filter and there was no diesel smell noted. The throttle and gear shift actuator were seen to move smoothly and were securely mounted. Hoses were not all marked, however, were visually of a marine diesel grade. Ends of hoses were securely fastened with jubilee clamps. Electrical wiring was securely fastened and wires were generally neatly laid.

When the engine was turned over, no burst of excess smoke was noted emitted from the exhaust. The oil and coolant was noted to be at the correct level.

Note: The inspection of the engine is limited to those tests and inspections listed above. It is recommended that the services of a diesel marine engineer are sought for a full and detailed engine inspection and analysis.

- Recommendation - Advisory: The vessel should be taken for an extended sea/river trial, where the engine may be seen running under sustained heavy load and where actuators may also be seen functioning whilst the engine is in service.

17. Fuel System

A mild steel diesel tank was set in the counter stern. A visual inspection and hammer sounding found the tank to be serviceable. A fuel filler was located on the port aft deck and was visually inspected and found to be in serviceable condition, and of a marine grade with arrangements for preventing water entering the fuel tank found to be adequate.

A fuel shut off valve in the draw pipe was noted within the aft compartment aside the weed hatch and was serviceable. Pipe work was visually inspected and found to be well supported and in serviceable condition. A diesel tank breather was noted set in the aft deck and was serviceable with fire proof gauze found in place.

18. Layout & General Accommodation

The layout and general accommodation arrangement of the vessel was as follows, from bow to stern:

- Fore Deck
- Fore Well
- Saloon
- Galley
- Heads
- Berth
- Engine Compartment
- Steering Platform

The accommodation was finished in a light white plywood, a wood finish throughout with no water damage or ingress noted. The sole was covered in parquet solid wooden flooring and lino in the galley. No sagging of the subfloor was noted under the weight of the surveyor.

Suggestion: Installing additional inspection hatches in convenient locations to confirm the base plate remains dry internally. These hatches should be left open when the boat is left unattended to allow some ventilation through the vessel.

19. Gas Installation

A full gas installation inspection can only be carried out by a suitably qualified gas operative registered with Gas Safe. Please note this survey is not any kind of gas safety certificate. This is only obtainable in the UK after comprehensive pressure testing and assessment by a qualified person listed on the Gas Safe Register www.gassaferegister.co.uk

Note: The following is a visual inspection only, however, any serious deficiencies that affect safety will be noted. The system was not physically tested as part of the survey.

A self draining gas bottle locker storage was found set into the forward bow locker of the vessel and was clearly marked. No corrosion to the gas locker and floor were noted. Two 13kg Butane gas bottles were noted. One bottle was connected to a visually serviceable regulator by means of a gas rubber hose. The regulator was connected to copper pipework

which was visually inspected where possible back to the gas hob and oven. Pipe work was noted to be well supported and serviceable where seen. Two gas shut off valves were noted, and both were serviceable when manually tested.

20. Freshwater, Sanitation & Pollution

The water tank was located below the well deck and a visual inspection was not possible. A water filler was located set into the foredeck locker and was noted to be serviceable and of a marine grade, with venting over the port side.

A 12v pump and accumulator were noted located beneath the aft well deck which was accessible from within the cabin. These were both visually serviceable. The pump was switch tested and found to be serviceable with water being delivered to the galley, and heads taps.

The heads consisted in three parts with shower, toilet and basin. The basin drained overboard by means of gravity. The shower sump pump was tested and heard and seen to be serviceable with water seen expelled over the side of the vessel. The toilet was visually serviceable with waste being led aft to a large stainless steel holding tank by means of odourless pipes which were visually serviceable. Pump out and flush deck fittings were noted securely affixed on the starboard side deck, and were of a marine grade.

Attention: Water leakage from showers and bathrooms can cause considerable damage over time and have been known to rot whole sub floors if not found, causing damage to the base plate below. Continual monitoring for any leaks is suggested.

21. Electrical Installation

DC:

The 12v system consisted of 4x ~100Ah lead acid batteries for domestic and 1x ~80Ah lead acid battery for engine starting. In addition there is thought to be a dedicated battery for the bow thruster, however, this was not seen due to lack of accessibility. Both the domestic and engine starting batteries were tested with a multi meter. The house and engine starting batteries were found to be serviceable reading 12.9v. The bow thruster battery could not be measured. *(Note: No guarantees can be given with regards to a batteries life as the service history of batteries is not known).* Both domestic and starter batteries were found aside the engine compartment, resting on the port side uxter plate within a dedicated battery compartment, with a lid to protect terminals from accidental shorting. The batteries were found to be secure within their housings, however, neither set were strapped down. The bow thruster battery was found in a dedicated battery box beneath the well deck seating and was not accessible for inspection. No comment can be made on this battery.

Two isolation switches were noted. One affixed to port of the companionway entrance for domestic and starter batteries, and the second affixed aside the well deck seating for the bow thruster battery. The wiring was laid out to a semi professional standard with wiring being protected from accidental shorting. Battery cables were deemed to be of an adequate size, and wired to a safe professional standard.

A Victron Phoenix 12v charger inverter was noted securely affixed within the port side companionway entrance and was serviceable when tested at the time of survey.

A switchable 12v electrical control panel was noted within the port side cabinet. 12v cabin lights were found throughout the vessel which were switch tested and found to be serviceable. The water and shower sump pumps were switch tested and found to be serviceable.

AC:

An RCD (Residual Current Device) was noted onboard the vessel at the time of survey. A 230v 16Amp shore power socket but no cable was also noted onboard the vessel at the time of survey. 230V plug sockets were tested with the inverter running, these were found to be serviceable with the inverter switched to on.

- Recommendation - Advisory: Seeing the plug sockets to be serviceable with the vessel is plugged into shore power.

22. Heating, Ventilation & Refrigeration

High level ventilation was provided by four mushroom vents securely affixed to the cabin top. Low level ventilation was provided by vents in the bottoms of the forward and aft cabin doors.

Closed cell insulation was not noted behind fixtures and fittings or in the cabin top lining. It could not be confirmed if any of the cabin had been insulated in any way.

A Morco solid fuel stove was noted resting on a stone paving slab hearth. This was noted to not be securley affixed with some movement noted. The hearth was noted to fully extend out in front of the stove. The flue was noted to be serviceable with no corrosion noted at the time of survey. The flue exited through the cabin top and was noted to not be protected with mild steel sheathing. The chimney was in place and serviceable. The flue was noted to be 150mm from the nearest combustable material. Some soot was noted within the flue which should be cleaned prior to use of the solid flue stove.

A Webasto diesel heater was noted securley affixed to the starboard side of the engine compartment. This was switch tested and heard to be serviceable at the time of survey. This was not seen in service at the time of survey with clouds of smoke produced when the unit was fired up.

A fridge was noted within the galley, however, was not seen to switch on and it did not become cold to touch.

- Recommendation - Dangerous: The Webasto should be serviced by a qualified engineer prior to use.
- Recommendation - Advisory: Seeing the fridge turn on and become cold.

Carbon monoxide poisoning is a considerable hazard and there have been a number of accidents caused by faulty gas appliances, inadequate alarm system and inefficient flues or lack of ventilation.

23. Additional Safety Items

No life ring or emergency equipment was found onboard the vessel at the time of survey.

- Recommendation - Advisory: The BSS (Boat Safety Scheme), RYA or RNLI can advise on appropriate safety equipment. Recommend checking the websites below and adding additional equipment as appropriate.
- The Royal National Lifeboat Institute - www.rnli.org.uk
 - The Boat Safety Scheme - www.boatsafetyscheme.org
 - The Royal Yachting Association - www.rya.org.uk

24. Conclusion

'Narrowboat' was found on the hard in Surrey and a Pre-Purchase survey conducted at the request of the purchaser.

Overall the vessel was set up as a live aboard, with the capacity for cruising. There are a number of items recorded within the body of the report which should be considered whilst the vessel is out of the water, including having her blacked, replacement / capping off through hull fittings, seeing the Webasto diesel heating system to be safe and serviceable. There are a number of additional recommendations within the body of the report surrounding safety items which should be actioned as soon as practically possible and prior to the vessel being used for habitation or navigation.

Rolf Thuncke

DipMarSur, MBMSE, AffilYDSA, AffilIIMS, AssocRINA
London Barge Surveys
4/5/2021

APPENDIX I : Table of Ultrasonic Thickness Measurements

Bow -> Stern																			
Port (m)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	17.15
Upper side plate	6.1	6.1	6.1	6.2	5.9	5.9	5.9	6.0	6.1	6.0	5.9	5.8	5.8	5.8	5.4	5.4	5.3	5.4	5.4
Waterline	NA	6.0	6.2	6.0	5.8	5.8	5.8	5.9	6.0	6.0	5.9	5.8	5.8	5.8	5.3	5.3	5.3	5.3	5.3
Lower Side plate	NA	5.8	6.1	6.0	5.7	5.7	5.7	5.9	5.9	5.9	5.7	5.7	5.6	5.7	5.9	NA	NA	NA	NA
Base Plate edge	NA	9.1	9.0	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.7	8.9	8.9	8.9	9.0	9.1	NA	NA
Base Plate mid	NA	9.1	9.1	9.1	9.1	9.0	9.1	8.9	9.0	9.1	9.1	9.1	9.0	8.9	9.1	9.1	9.1	NA	NA
Counter Plate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.9	5.8	NA	NA
Uxter Plate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.7	9.1	9.5	9.6
Starboard (m)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	17.15
Upper side plate	6.1	6.1	6.1	6.1	5.8	5.8	5.9	5.9	5.9	5.9	5.8	5.8	5.8	5.8	5.4	5.4	5.3	5.4	5.4
Waterline	NA	6.0	6.0	6.0	5.8	5.8	5.9	5.9	5.9	5.9	5.8	5.8	5.8	5.8	5.3	5.4	5.3	5.2	5.3
Lower Side plate	NA	6.0	5.9	6.0	5.8	5.8	5.8	5.9	5.7	5.9	5.9	5.8	5.8	5.8	6.0	NA	NA	NA	NA
Base Plate edge	NA	9.0	9.0	9.0	8.9	9.0	9.0	8.9	9.0	9.0	8.9	8.9	8.9	8.8	8.9	8.9	9.1	NA	NA
Base Plate mid	NA	9.1	9.1	9.1	9.1	9.0	9.1	8.9	9.0	9.1	9.1	9.1	9.0	8.9	9.1	9.1	9.1	NA	NA
Counter Plate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.9	5.9	NA	NA
Uxter Plate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.9	9.1	9.5	9.6

APPENDIX II : Photographs





