

Mike Chadwick Surveys Ltd.

Boat & Yacht Surveyor

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Member: British Marine Surveyors Europe
Independent Surveyor M.E.C.A.L
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Boat Inspection Report:

Vessel “”

Report No: 100010



Vessel Data:

Make: Narrowboat
Type: Traditional stern
Advised Build Date: 1990
Builder: Les Allen and Sons
Canal and River Trust No.
HIN Number: Not applicable
Use: Inland Waterways Cat D

Principal Dimensions:

Length overall: 55'
Beam at base plate: '6.11"
Draft: 2'10"

Engine:
Russel Newbury 18hp.

This boat inspection was completed for: xxxxxxxxxxxxxxxx
On: 15th October 2019 starting at 08.30am and finishing at 1pm
At: RW Davis Marina, Saul Junction, Gloucester.

Completed by Mike Chadwick on behalf of Mike Chadwick Surveys Ltd.
No unusual limitations affected the survey apart from those mentioned in the text. The weather was fine.
The vessel was found in the dry dock, sitting on bostocks, which partially restricted access to the vessel. The vessel was over 1 meter off the ground but there was a lot of water in the dry dock due to the heavy rains which made the survey difficult. Towards the end of thickness testing the tide came in and the water level went up until it came over my wellingtons, so the hull survey had to be aborted. It was however believed that although the hull survey was not fully completed enough readings had been taken to gain a good impression of the condition of the hull. I was unable to complete the forwards, port section fully.

The client was present at the end of the survey and a discussion was held regarding the condition of the vessel.

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Background:

This vessel has been in the ownership of the insured for 11 years. Little of the history of the vessel was known but the owner is a retired engineer who has the ability and time to maintain the vessel well.

xxxxx was a tug style vessel which was an open barge with just a boatman's cabin originally but has been converted with the addition of a lengthened cabin with a saloon and an enclosed tug deck forwards with a pull out bed beneath.

The vessel has a historic Russel Newbury slow revving engine in the central engine room with side doors.

It was understood the vessel had been issued with a Boat Safety Certificate but this was not seen.

The Hull Identification number and CE plate were not found but the vessel was built in 1990, prior to the introduction of the Recreational Craft Directive.

Report Overview:

The aim of a boat inspection is to put the client in a better position to make balanced decisions.

A boat inspection is generally carried out prior to a purchase or insurance arrangement. This was an Insurance survey.

The surveyor aimed to determine the condition of the various systems and components as well as the general structure of the vessel. Inspection may be limited by a lack of access, information or many other factors which mean,

not all potential improvement items will be identified during this inspection and unexpected repairs could still be anticipated, particularly if the vessel has not been in regular service.

Conventions:

Recommendations: Constitute a major concern or safety issue, which is considered significantly deficient or is unsafe. Recommendations require correction immediately or within a given time scale if mentioned.

Suggestions: *Include items that require repair or improvement, or may simply require monitoring. Suggestions can often include the surveyors advice to maintain the longevity of the vessel.*

The **summary** is listed right at the end of the report so it can easily be printed as a list of works required.

Definition of Terms:

Good: An item which is fully within the limits of use with only minor traces of wear.

Serviceable: Within the limits of use but showing signs of wear.

Adequate: Just within the limits of use. Further use possible but replacement is imminent.

Poor: Item falls outside the limits of use. Further use is not possible and replacement required.

Condition Report

Hull Deck and Structure:

Hull Thickness Measurement:

A Cygnus 2 multi echo ultrasonic thickness meter was used to measure sample plate thickness. Being multi echo the meter discounts the paint thickness. The meter was calibrated before use. Thickness testing is of a sample nature targeting suspect locations around the hull. Over 100 readings were achieved which showed an acceptable consistency. Enough sample readings were achieved to confirm the plating remained in good condition, which was backed up by aggressive sample hammer testing with a 16lb ball peen hammer.

To complete a comprehensive thickness test it would be necessary to blast the hull clean first and complete many more readings, which would not be practical, or considered necessary at this time.

Thickness readings:

Side plate original nominal thickness 6mm. Range of readings 5.2mm to 5.8mm Pitting < 0.5mm where seen

Base plate original nominal thickness 12mm. Range of readings 9.7mm to 11.7mm Pitting <0.5 mm

The readings taken were consistent and show little diminution. The virtual lack of pitting confirmed that the vessel had been originally built out of a high quality steel. There was little evidence of serious corrosion internally in the few areas where the base plate could be accessed, namely the engine bay and the small inspection hatch aft in the cabin.

We were led to believe there had been some rusty areas internally but this always looks worse than it is. The owner has cleaned off the rust and painted these areas and there was no evidence of any fault on this survey.

The hull was therefore believed to be in good condition at the present time so long as further corrosion is minimised. There was no evidence of any paint on the base plate externally.

Base Plate

The 12 mm base plate was found fairly clean and was visually fair with no evidence of serious indentation or damage.

The base plate was cleaned off in sample areas around the outer edges and on the centreline. In the cleaned off areas the underlying plate was found in good condition with only minimal pitting found. The base plate was not coated in canal crud as normally seen so inspection was reasonably easy.

There was no evidence of any protective paint coating, which is disappointingly usually the case with narrowboats. Paint coating is the only way to prevent electrolytic pitting.

A 20mm sacrificial strip where the chine extends outside the side shell of the vessel to minimise wear to the weld was found in serviceable condition

Welding joining the swim plate to the counter plate, side plate to bottom plate and weedhatch assembly were also externally inspected, sample hammer tested and found continuous and fair.

The counter plates were of 12mm plating and in good condition on both sides.

Weed Hatch:

The weedhatch extended through the counter plate above the propeller. The weed hatch top was barely an acceptable height above the waterline. (150mm above the counter plates.) The weedhatch top and mechanism were visually acceptable with a substantial rubber gasket and a well maintained clamping system. Note the weed hatch top and gasket are keeping the vessel afloat so should be removed at least once a year to keep the mechanism serviceable and inspect the gasket.

There was an adequate cavitation plate in place.

Suggest: Next time welding work is being completed consider extending the weed hatch up through the steering deck to increase the freeboard of the vessel. In the meantime the weedhatch top must be well sealed.

Bow Thruster:

The unmarked bow thruster was set into a 5mm steel tube welded to the hull. The bow thruster was situated behind a watertight bulkhead so any problems with the bow thruster or pitting in the tube will not flood the entire boat. The bow thruster tube grills were in the process of being altered to be easily removable which is good practice. All visually serviceable but could not be tested. The bow thruster battery terminals and the leisure battery terminals, were not covered which is a BSS requirement.

Recommend: Cover the bow thruster and leisure battery terminals.

Side Plates:

The side plates above the water line were clean and fair. The paintwork above the waterline was in fair condition. There was rust corrosion along the waterline. Waterline corrosion was not considered serious at this time but should be cleaned off and re painted. There was no visible evidence of significant impact damage or indentation. The side plates were coated in a very thick layer of bitumen blacking which hindered inspection. In places this thick blacking chipped off under aggressive hammer testing. One section midships to starboard was cleared of all blacking to inspect the steel below with very little pitting or corrosion found.



The welding to the hull was a little uneven but believed to be serviceable. Welded butt joints were externally inspected, were tidy and unobtrusive and hammer tested serviceable. Waterline pitting was minimal. Aggressive hammer testing below the waterline produced no evidence of weakness in the steelwork. Sample hammer testing carried out around welds gave no indication of weakness. The rubbing bars were welded top and bottom, which was considered good practice.

Suggest: The use of two-part epoxy paint protection for side shells and base plates is becoming more common on narrowboats for long-term protection. This is the best defence against future corrosion. This is more important if shore power and a 230v battery charger are to be used regularly.

In discussions with the Insured we mentioned Hot Zinc spraying at Debdale in Leicester . Alternatively the use of epoxy primer under epoxy blacking will protect the hull. In both cases the hull needs to be grit blasted clean prior to painting. It would be advisable to complete a quality paint coating in the next two or three years and as with all paint coatings the quality of the coating depends on the quality of the preparation and the conditions in which the paint is applied.

Cathodic Protection:

The vessel featured 4 pairs of cast magnesium sacrificial anodes fitted to the hull side shell by way of welded straps which hammer tested serviceable. One set of anodes were estimated at 80% worn so should be replaced.

Note: Cast magnesium 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.

Suggest: Add four new magnesium anodes next time the vessel is out of the water.

Skin Fittings and Overboard Discharges:

There were no underwater skin fittings which is considered good practice.

Most overboard drains were above the Canal Boat Association recommendation of a minimum 250mm freeboard. The kitchen sink discharge was in very poor condition and was seen to have a smaller discharge set in to the normal 2" discharge and secured with silicone. This is not safe practice and the discharge should be replaced by one that fits the hull securely.



Unsafe sink overboard discharge.

Recommend: Replace the sink drain overboard discharge skin fitting. Any discharge pipes connected to skin fittings, below the industry standard 250mm above the laden waterline should be securely clipped at both ends and loop up to deck level where possible. All hull fittings should be secure and sealed. All open holes in the side shell should be welded up securely in case the vessel tips on the bank or in floods. Any redundant discharges should be welded up permanently.

Hull internal Structure:

The insulation could not be determined.

Various types of ballast were found in different locations around the hull. Judging from the water line the trim of the vessel was good.

The internal hull was accessed in several places and in all areas the hull was found dry, clean and well painted. No access was found beneath the saloon floor and it would be advisable to ventilate under this timber floor

Suggest: Install access points to the base plate under the saloon floor to ventilate and ensure it remains dry.

Deck Structure:

The side deck was of 6mm welded steel construction. There was no non-slip finish on the decks which is not good practice.

Paint coating found serviceable at this time.

The aft steering deck was of 6mm mild steel with a lift up hatch providing access to the weed hatch. The steering deck drains were serviceable.

The "Tug" deck was generally in serviceable condition with four heavy lift up hatches to allow for gas lockers and storage. The hatches to these lockers were of good quality and with high lips to stop water ingress.



Recommend: Add a non slip finish to the side decks and steering deck.

Cabin Structure:

Of 4mm welded steel construction for the cabin sides and 4mm top. The cabin top was found ridged under the weight of this surveyor.

The 4mm cabin structure had a serviceable quality paint finish overall.

The cabin side and top panels were visibly fair with no evidence of serious damage or indentation.

All in good condition.

There were four brass mushroom vents on the cabin roof along with a gull winged hatch over the engine bay.

Hatches, Windows and Doors:

The aft entrance door was by way of twin steel doors and a steel sliding hatch, solidly constructed.

Forward doors were twin timber lined steel doors.

Twin steel side doors to the engine room were serviceable.

Windows were brass ringed portholes, all lying tight and fair to the cabin side.

Suggest: It is important to clean out window drip channels and drains on a regular basis to prevent moisture ingress on to the internal timber. Stop all window leaks.

Limitations of Inspection as laid out in inspection contract.

Structural components concealed behind finished surfaces could not be inspected.

Access to the base plate was limited externally and not possible internally.

Only a representative sampling of visible structural components was completed. This includes thickness testing, moisture testing and hammer testing as thought necessary. To complete comprehensive testing it would be necessary to blast the hull clean first and complete many more readings, which was not considered to be practical or necessary at this time.

Access to structure limited by the bostocks on which the boat was sitting.

Engine and Mechanical including stern gear:

Description:

Engine Type:	Russell Newbery 18hp Diesel engine.	
Paintwork:	Good	
Engine number:	22E1473	Hours: 6419
Engine run on water:	No	Ashore: No
Oil Checked:	Yes at correct level .	Leaks: None noted.
Fuel Checked	No	Leaks: None noted
Pipes and belts checked:	All visually serviceable	
Exhaust:	Secure with a large silencer and extending out of the boat through the roof.	
Controls:	Visually Serviceable	
Gear box and coupling:	PRM Hydraulic gear box. Mechanical couplings extending the shaft good.	
Engine mounts and beds:	Solid engine mounts to timber engine beds.	
Engine drip tray:	Separate from bilge pump.	



Engine bay condition:

The engine bay was dry and well painted. There was dry newspaper under the engine with no evidence of oil leaks in the drip tray.

Stern Gear:

Propeller:	700mm three bladed right hand phosphor bronze propeller. Tips serviceable with only minor impact damage. Propeller secure.
Shaft:	48mm magnetic shaft. Visually serviceable and believed straight. Turned easily by hand.
Bearings:	Little movement in stern gland.
Rudder	Operation: Adequate. Bearings serviceable but it was understood the top bearing was to be changed.

Generator:

There was a small Yanmar Cereda 2.8kw generator installed in the engine bay with a separate exhaust and fuel feed.

All visually serviceable but not tested.

General Comments/engine running:

The engine was visually in good condition with good access for servicing. It gave the impression that it has been well serviced and maintained. The batteries had been disconnected to complete the welding work to the hull so the engine could not be tested.

Limitations of Inspection as laid out in inspection contract.

The engine and generator installations are inspected visually, and (where possible if presented in commission) the engine is run up to assess its general running characteristics, vibration levels etc. No dismantling of the engine or associated equipment is carried out within the scope of a condition survey so no detailed comment upon the condition of internal parts is possible without separate full strip down and mechanical survey. It is recommended that Diesel and Petrol engines should be inspected by a qualified marine engineer and in any event, should always be fully serviced prior to operation.

The engine may have been run but will not have been run under load for any length of time.

Interior Accommodation:

Description:

The floor was believed to be plywood covered in carpet or lino. All in adequate condition.
The cabin linings were a light oak type panelling and were solidly built.
No evidence of MDF was found in the fit out. MDF has minimal resistance to moisture.
The kitchen was in fair condition.
The tiling in the boat was all in good condition.
The type of insulation could not be determined.

There was a double bed forwards in the saloon which pushed under the tug deck. This was all serviceable.
The internal linings were tested with a Tramex moisture meter for moisture ingress as mentioned previously. There was no evidence of leaking or moisture internally.

Upholstery and curtains:

In visually serviceable condition.

Heating:

Solid Fuel Stove manufactured by Stova and sitting on a tiled hearth.
Distance from nearest flammable surface was visually adequate.
Flue condition good with no evidence of scorching.
No evidence of scorching where the flue passed through the headlining.

Epping Stove in the Boatman's cabin:

These stoves are well known for not being safe as there is no room to form safe clearances between the stove and flue and the surrounding woodwork. The flue to this stove is almost touching the panel behind so constitutes a serious fire risk, but there was no evidence of scorching in this example. These stoves have a historical value to retain authenticity of the back cabin but if they have to be used should be used with great care and always supervised. This example had the flue baffle removed so there was an open hole in the flue.

Recommend: Do not use Epping stove until the flue has been repaired and then it should only be used with great care and supervision. Do not leave the stove unattended or sleep in the cabin with the stove alight.

Limitations of Inspection as laid out in inspection contract.

This is a visual inspection as laid out in the inspection contract and no fixed panels are removed. Appliances and heavy items are not moved to inspect behind. Carpets and other floor coverings can not usually be lifted to inspect below.

Moisture testing is of a sample nature and only gives an indication of any leaking fittings. Woodwork is assessed by discreet sample spike testing, particularly to accessible sub structures but this can not be completed to high quality finished timber or woodwork which is covered, or inaccessible and we are therefore unable to report that such parts are free from defect.

Insulation could not be seen so it could not be confirmed that all panels were insulated behind.

Solid fuel stoves are not lit to be tested.

On Board Systems and Boat Safety:

Fuels:

Diesel:

Steel, built in fuel tank, aft under the boatman's cabin floor. Copper pipe supply with isolation taps. All visually serviceable subject to cleaning.

The cleanliness of the fuel in the tank could not be confirmed and dirty fuel is a common cause of engine failure.

Gas: Two gas canisters in the forwards gas locker with acceptable overboard drainage. Locker floor visually serviceable subject to painting. Gas canisters were not secured.

Other hard items were stored in the gas locker.

No Bubble tester fitted.

Age of flexible pipe was dated as 2011

Gas Appliances: This is a simple gas system supplying a hob, oven and Morco boiler. The hob and oven were both in good visual condition as was the Morco boiler and flue. None were tested.

There were no isolation taps to the appliances.

Other Appliances

The 12v fridge powered up.

Recommend: Have gas system brought up to Boat Safety Scheme standards by a gas safe operative with an LPG marine endorsement.

Electrics:

12v DC System. Four 110ah leisure batteries reading 12.72V and a separate 75ah bow thruster battery reading 12.72V. Batteries found in acceptable battery trays but neither sets of batteries had the terminals covered. Battery wiring was visually serviceable but was disconnected due to the welding work being completed..

Batteries were secure in their trays but not strapped down.

All battery voltages were at a serviceable level.

There was a main battery, isolating switch which tested serviceable

Battery charging from alternators and a 230 volt battery charger

There was a 230V shore power socket fitted which could not be tested. The mains power source was selected by moving the socket between the mains shore power and the generator output. The circuit was then protected by an RCD.

There was a large GB Sol solar panel on the roof with a solar power regulator in the boatman's cabin

Fire Safety:

2 off 1kg fire extinguishers and a fire blanket found. Guages all indicating an acceptable pressure.

Fire blanket in the galley.

Carbon monoxide alarm noted and powered up from the main batteries.

There was an acceptable alternative method of escape.

Water:

The hot and cold water system was not tested.. Hot water from a calorifier in the kitchen with an immersion heater. There was a Porta Pottie cassette toilet in adequate condition which is considered good practice. The shower , bath and washbasin were not tested but the tiling and sealing was visually serviceable.

Limitations of Inspection as laid out in inspection contract.

A full gas installation inspection can only be carried out by a suitably qualified gas operative registered with Gas Safe as a specialist LPG engineer with an endorsement to work on boats. . Please note this survey is not any kind of gas safety certificate. That is only obtainable in the UK after comprehensive pressure testing and assessment by a qualified person listed on the Gas safe register (formally CORGI)
www.gassaferegister.co.uk

Any serious deficiencies that affect safety will be noted and may be shared with third parties.

Boat Safety Scheme issues are compared to the Boat Safety Scheme essential guide only. A boat Safety Scheme Certificate is rather like an M.O.T. on a car and does not guarantee suitability or safety.

Electrical, plumbing, heating and other services are inspected where visible but not operated unless presented in commission. Electrical wiring is inspected visually only in all cases.

Boat Ownership Advice:

After taking ownership of your new vessel there will be some maintenance and safety issues that should be addressed immediately.

The following checklist should help you to undertake these improvements and comply with current legislation. It is the responsibility of the skipper to ensure the vessel is of suitable dimensions for intended cruising grounds.

When you first get your boat.

Pick a good weather weekend and remove all of the soft furnishings.

Open all cupboards and lift floor panels. Understand where all the pipe runs and electrical runs are installed. Understanding where everything is and how systems work, makes repairs a lot easier.

Once you have purchased your boat you are largely on your own and completing basic repairs and servicing yourself will save you a lot of money.

Learn to steer your vessel by practicing manoeuvring in tight spaces. Learn how the wind effects your vessel. For inland users River Canal Rescue offer a comprehensive breakdown and recovery service.

Security: Change the locks on all exterior entrances and hatches to improve security. Check that all windows and doors are secure: Improve window hardware as necessary. Security rods can be added to windows, hatches and doors. Consideration could also be given to an alarm system.

Mooring: Boats can be left for long periods in exposed and sometimes undesirable locations. Vandalism, arson and theft are all problems to be considered. Be aware that water levels can change and the effect of this must be considered.

Fire Safety: Create a plan of action in case of fire in your boat. Check fire extinguishers are fully charged and in the correct place on a monthly basis. Smoke detectors should be installed in each room. Carbon Monoxide and gas detectors should be fitted in suitable locations. In case of fire get everyone off, and well away from the boat as soon as possible.

Suggest: *Install all necessary alarms and test on a monthly basis: Inspect fire extinguishers monthly.*

Narrowboat Corrosion: To minimise steel corrosion it is now widely agreed that the use of epoxy primers and epoxy blacking is the best protective method under the waterline. Older boats can only be painted properly after they have been grit blasted clean. This is now becoming normal practice for quality boat builders. Epoxy fillers can be used on existing corrosion and pitting. Plug welding is also acceptable for pitting. It is important that pits are cleaned out well prior to filling or welding and are painted over afterwards.

Ventilate your boat well: The importance of continuous ventilation can not be stressed too highly to avoid condensation and to keep the internal plating as dry as possible. It is also vital for the prevention of Carbon Monoxide poisoning. The use of several floor ventilation hatches will help to ventilate under a wooden floor.

Suggest: *Remove floor inspection hatches and open access cupboards when the boat is not in use to improve ventilation to the hull and reduce the risk of damage to the sub floor from damp.*

Bilge Pumping Arrangements: There is no requirement for bilge pumping on recreational vessels. They are however the last line of defence against sinking. Automatic 12v bilge pumps rely on a continuous power supply and should not be switched off when the vessel is left unattended. They also rely on cleanliness. One bilge pump is never enough. A back up, manual, high capacity bilge pump that can be operated by a passer by may save the vessel. Test all bilge pumps prior to leaving the vessel.

Winterise your engine and water systems:

Engines should be winterised to the engine manual, and drain all water systems before leaving the boat for the winter.

Check your boat at least once a month.

Docking: It is advisable to dock your vessel every 12 months on a lift and hold basis to inspect the underbody and the stern gear. Use this opportunity to pressure wash the vessel to aid inspection.

Safety Equipment:

It is important that safety equipment is relevant to the cruising area envisaged.

Safety Equipment must be kept in good condition and serviced according to manufacturers instructions. Each crew member should wear a life jacket at all times when on the water.

Marine Coastguard Agency coding:

Only applicable if the vessel is to be used for commercial work.

V.A.T. Status and proof of ownership:

The original purchase invoice confirms that V.A.T. has been paid so long as the vessel is properly identified.

This invoice should be kept in the owners manual. This is only important if the vessel is to be taken abroad.

If you do not have proof of V.A.T payment and take your vessel abroad you may be charged V.A.T again.

Boat Safety Scheme:

A Boat Safety Scheme Certificate should be provided with the vessel rather like a car M.o.T.

Please be aware that the existence of a Boat Safety Scheme certificate does not imply that the craft is safe. It only indicates that, on the day of the inspection, the craft has met the requirements for licensing with the Navigational Authority, concerned with minimising the risk of fire and pollution and its effect on other vessels.

Boat Safety Certificates have little value in a Pre Purchase Situation.

BSS inspections are required every 4 years.

Suggest: 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. Alterations and improvements should be made to manufacturers instructions and the BSS.

Small Ships Register:

Some vessels are registered with the Marine Coastguard Agency on the Small Ships Register for proof of ownership and finance reasons. We can help with this registration if required.

Canal and River Trust Registration:

Inland vessels should be registered with the Canal and River Trust. The license should be displayed on the vessel. A Canal and River Trust Number should be correctly displayed on both sides of the vessel for identification.

Registration with the Canal and River Trust will require updating with a change of ownership.

Recreational Craft Directive:

If the vessel was built after July 1998 the requirements of the Recreational Craft Directive apply.

The vessel should have an acceptable builders plate with CE mark.

An owners manual should be available which included a Certificate of Conformity for the vessel.

A Hull Identification Number should be correctly marked on the starboard side of the transom.

It is generally accepted that the requirements of the Recreational Craft Directive have little effect once the vessel is over 5 years old.

Suggest: An owners manual should be kept up to date and all paperwork for the vessel added to it. This is particularly important for receipts for work carried out on the vessel, surveys and instruction booklets for additional equipment.

Recommend: Complete all the Recommendations made in this report. If you do not it may well effect your Insurance cover.

More useful information regarding the safe use of your boat can be found on the following web sites:

www.mcga.gov.uk Marine and Coastguard Agency.

www.rya.org.uk Royal Yachting Association.

www.boatsafetyscheme.org Boat Safety Scheme.

www.rivercanalrescue.co.uk River Canal Rescue.

Glossary of terms:

- Accessible** Capable of being reached for operation, inspection or maintenance without removal of permanent boat structure.
- Anti-cavitation plate** A plate fitted flush or almost flush to the counter plate to cover the weedhatch aperture.
- At Risk** An installation which, if operated, may lead to a situation which could create a risk to life or property.
- Average plate thickness** The calculated steel plate thickness as a mean of a number of readings.
- Chine** The joint between the hull side and hull bottom. There may be several chines, depending upon the hull design.
- Cratch board** A vertical frame, normally triangular, fitted to the fore deck to provide support for covers.
- Counter** The stern section of a vessel, where the underwater section reduces in beam to allow water to flow to the propeller or rudder
- Counter plate** Flat plates, extending outboard of the swim. Also known as uxter plates
- Dolly** A round bollard used for mooring.
- Extending heel** An extension to the bottom below the propeller to support the rudder. Often known as a skeg.
- Galvanic corrosion.** Pitting caused by stray electric currents.
- Gunwale** The top edge to the hull top side.
- Knee** Internal support framing for the hull side, generally vertical. In some craft it may extend to also support the bottom plate.
- Nominal** The basic manufactured dimension. Due to manufacturing techniques, the actual dimension may be larger or smaller, within appropriate tolerances.
- Overplate** Plating fitted on top of the hull plate.
- Readily accessible** Capable of being reached for operation, inspection or maintenance without the use of tools.
- Residual plate thickness** The calculated steel plate thickness, after considering the deepest pit measured and the average plate thickness.
- Rudder Post** A steel bar connecting the rudder blade to the tiller.
- Rudder post tube** A tube fitted between the counter plate and deck for the rudder post to pass through
- Sacrificial strip** An extension of the bottom plate to provide protection and a wear edge for the bottom weld.
- Scantling** The size and location of structural members and plating.
- Swim** The section of the hull side to the stern of a narrow boat that reduces in beam to allow water to flow to the propeller.
- Skin tank** A steel tank fitted to the internal hull, with at least one face being the hull plating. The tank contents are cooled by the external water via the hull plating.
- Stringer** Internal support framing for the hull side or bottom, generally running fore & aft.
- Tiller** A steel bar used for steering.
- Taff rail** A safety rail round the back of the steering deck.
- Topsides** The upper section of the hull side.
- Turn of the swim** The position on the hull where the side plating starts to bend towards to centre of the craft to form the swim.
- Turn of the bow** The position on the hull where the side plating turns in to the bow.
- Transom.** Flat plate extending across the back of the boat.
- Ultrasonic meter** A hand-held electronic device with a small probe that indicates material thickness by recording the speed of sound through the material.
- Weedhatch** An aperture directly above a propeller, enabling removal of debris from the propeller.

Terms of Survey:

A Boat Inspection Survey provides an opinion on the structural condition of all visible and significant aspects of the structure of the vessel as presented for survey, with particular reference to the hull condition.

Machinery, masts, spars, rig, sails, ancillary equipment, gas, electrical, electronics, pumping and plumbing equipment, sewage treatment plant, refrigeration equipment, air conditioning, navigational aids, other sundry services and tankage are inspected only for visual appearance and installation standards without dismantling or specific test. Where a mast is stepped only those parts of the mast and rig up to head height are inspected in detail.

Hull condition is assessed by general non-destructive examination and by assessment of the condition of sample areas where coatings are removed. Where hulls carry heavy layers of paint, pitch or epoxy finishes the condition of all areas of substrate cannot be guaranteed and condition can only be estimated on the basis of evidence gleaned from sample areas scraped clean. The survey does not provide an opinion on the condition of areas not presented visible, for example behind linings, beneath fixed floorings etc. Unless these are accessible through visible portable traps and should not be taken to preclude completely the existence of isolated damage or deterioration concealed by paints, fillers or other means.

The engine and generator installations are inspected visually and (where possible if presented in commission) the engine is run up to assess its general running characteristics, vibration levels etc. No dismantling of the engine or associated equipment is carried out within the scope of a condition survey so no detailed comment upon the internal parts is possible without separate full strip down and mechanical survey.

Electrical, plumbing heating and other services are inspected where visible but not operated unless presented in commission. Electrical wiring is inspected visually (only) in all cases.

The bottled gas installation is inspected visually only and pressure tests are not undertaken within the scope of this survey. All gas systems should be regularly tested as part of a normal preventative maintenance routine and the installation of a bubble leakage tester which permits simple non-invasive regular checks on the integrity of the system is strongly recommended.

Tanks are inspected where visible but not internally and are not pressure tested. Windows, hatches and external doors are not tested for water tightness. Hull fastenings and skin fittings are not withdrawn for inspection.

Any estimate of valuation provided is based on known average retail values achieved by craft of a similar type and condition in the same location and should not be confused with the replacement value, which may be substantially higher particularly in the case of rare or unusual boats.

Particulars such as registration numbers, tonnage, build year and dimensions are normally stated as advised or as exhibited aboard ship and are not authenticated. Dimensions, if checked are measured by means of steel tape measures and should not be relied upon as to total accuracy. This survey does not seek to establish that clear title to the vessel exists or that it is being offered for sale free of debts. And encumbrances.

Unless specifically instructed to the contrary the inspection, and any comments made relative to the design, performance or stability of the vessel, are based on the assumption that the vessel will be used as a private pleasure boat in the waters for which it was designed. Unless specifically stated to the contrary this inspection and report does not seek to address compliance with any national or international codes, standards or regulations. This report is prepared solely for the benefit of the client to whom it is addressed and by whom it was commissioned and no responsibility is accepted to any third party to whom the report is passed or sold. This survey contract shall be governed by construed in accordance with English law. Any dispute arising hereunder shall be submitted to the exclusive jurisdiction of the courts of England and Wales. No responsibility is accepted for any consequential losses arising, including but not limited to loss of profits, loss of use or business interruption.

Declaration The purpose of a Boat Inspection Survey 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 the 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 vessel's age, for example very good condition should not be taken to mean new condition.

A visual inspection was made of the engine and installation and is not a guarantee of the engine condition. The client would need to commission a qualified marine engineer to test for compression and power in order to get a more definite understanding of its future performance and reliability.

The vessel details such as registration, dimensions, tonnage, date of build etc. have not been authenticated and the source of such information is identified in the report.

In some cases it is not possible to detect latent and hidden defects without destructive testing and such testing is not possible without the owner's consent.

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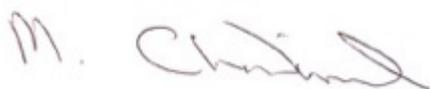
This report carries no warranty regarding ownership of the vessel or any warranty regarding outstanding mortgage, charge or other debt there may be on the vessel. The validity of any CE marking and the conformance or otherwise, of the vessel to the Recreational Craft Directive (RCD), the EMC Directive and the Machinery Directive are outside the scope of this inspection and report. The inspection did not include an assessment of compliance with requirements of any particular authority.

Law and Jurisdiction

This document is to be construed under English Law and English Law shall be used in interpreting the document and for resolving all claims or disputes arising out of or connected with the document.

I have examined the above vessel and consider its condition acceptable provided the Recommendations in this report are carried out.

Surveyor Date: 21st October 2019



M.Chadwick

Valuation:

STATEMENT OF VALUATION

The "**FAIR MARKET VALUE**" is the most probable price a vessel should achieve in a competitive and open market under all conditions requisite to a fair sale. In a "willing buyer - willing seller" situation the purchase price is set for a particular day and a set location, following a reasonable time allowed for exposure on the open market.

The current economic situation and availability of credit also has an effect on value.

The Fair Market Value is not a replacement cost of the vessel, which will usually be considerably higher.

Vessels are often sold under a "Distressed Sale" situation. To obtain a quick sale the sales price may be considerably less than the Fair Market Value.

"SURVEYORS VALUATION"

Valuations are the surveyors opinion based on partial information and experience and are produced for the use of the survey client only.

Surveyors valuations are based on:

- Past surveys completed which may include sold prices.
- Asking prices of other vessels on the market at the time (comparitors)
- The condition of the vessel and work required following the survey.
- General care and servicing of the vessel and the way it has been presented for sale.

On the instruction of xxxxx I have found four reasonable comparitors for sale on the open market, the details of which have been retained for future reference.

After consideration of the reliability of the information available at this time, it is my opinion that at :

R.W.Davis yard, Saul Junction , on 15th October 2019

a "FAIR PURCHASE PRICE" for the subject vessel xxxxxxxxxx would lie between:

£ xxxxxx and xxxxxx



21st October 2019

A figure within this range may well be acceptable to Insurance Companies as a reasonable sum insured and to Financial Institutions as a guide for the purpose of raising finance

Report Summary:

List of Recommendations:

The Recommendations made in the Report are listed below.

Recommend: Cover the bow thruster and leisure battery terminals.

Recommend: Replace the sink drain overboard discharge skin fitting. Any discharge pipes connected to skin fittings, below the industry standard 250mm above the laden waterline should be securely clipped at both ends and loop up to deck level where possible. All hull fittings should be secure and sealed. All open holes in the side shell should be welded up securely in case the vessel tips on the bank or in floods. Any redundant discharges should be welded up permanently.

Recommend: Add a non slip finish to the side decks and steering deck.

Recommend: Do not use Epping stove until the flue has been repaired and then it should only be used with great care and supervision. Do not leave the stove unattended or sleep in the cabin with the stove alight.

Recommend: Have gas system brought up to Boat Safety Scheme standards by a gas safe operative with an LPG marine endorsement.

Recommend: Complete all the Recommendations made in this report. If you do not it may well effect your Insurance cover.

List of Suggestions:

Suggest: Next time welding work is being completed consider extending the weed hatch up through the steering deck to increase the freeboard of the vessel. In the meantime the weedhatch top must be well sealed.

Suggest: The use of two-part epoxy paint protection for side shells and base plates is becoming more common on narrowboats for long-term protection. This is the best defence against future corrosion. This is more important if shore power and a 230v battery charger are to be used regularly.

Suggest: Add four new magnesium anodes next time the vessel is out of the water.

Suggest: It is important to clean out window drip channels and drains on a regular basis to prevent moisture ingress on to the internal timber. Stop all window leaks.

Suggest: Install all necessary alarms and test on a monthly basis: Inspect fire extinguishers monthly.

Suggest: Remove floor inspection hatches and open access cupboards when the boat is not in use to improve ventilation to the hull and reduce the risk of damage to the sub floor from damp.

Suggest: 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. Alterations and improvements should be made to manufacturers instructions and the BSS.

Suggest: An owners manual should be kept up to date and all paperwork for the vessel added to it. This is particularly important for receipts for work carried out on the vessel, surveys and instruction booklets for additional equipment.