

# Hull and Gear Survey

on

## Narrow boat *No Way*

The report was undertaken on behalf of:

Mr F Smith  
123 Canal Bank  
Anytown  
BW12 3WB

### Vessel particulars:

<b>Name:</b>	<b><i>No Way</i></b>
<b>Type/model:</b>	Semi-traditional style narrowboat
<b>Construction material:</b>	All welded steel
<b>Shell builder:</b>	Smith Brothers *
<b>Fit-out:</b>	Amateur fit-out by owner*
<b>Year completed:</b>	2000 *
<b>BW registered no.</b>	123456
<b>Length:</b>	55ft 0in *
<b>Beam:</b>	6ft 10in *
<b>Max. draught:</b>	2ft 5in (measured)
<b>Engine(s):</b>	BMC 1.8 4 cylinder diesel
<b>RCD status:</b>	No evidence found that the vessel is CE marked
<b>BSS status:</b>	Certificate valid until November 2008 *
<b>BW license:</b>	Expired October 2005
<b>Broker:</b>	Midlands Marina

### Survey particulars:

<b>Type:</b>	Hull and Gear
<b>Date of survey:</b>	June 30th 2006
<b>Weather conditions:</b>	Warm and dry
<b>Report no:</b>	1111

All information marked \* was taken from the brokerage details supplied by Midlands Marina

Acting on instructions received from Mr F Smith, I attended the vessel *No Way* afloat and then on the slipway at Midland Marina on 30<sup>th</sup> August 2006. The purpose of the visit was to carry out a *Hull and Gear* survey (type 2 on the survey scope sheet) within the limitations set out below.

The survey is carried out on the basis that I am legally liable to the above named client only and not to any subsequent holder of this report.

The client was not present during the survey.

## **FACTORS LIMITING SURVEY**

- A The vessel when inspected ashore, was supported on a launching trolley which allowed good access to the sides of the hull and the fore and aft ends of the bottom plate. The trolley structure prevented access to the middle eight metre long section of the bottom plate. No cleaning had been carried out prior to the inspection and fouling was evident over the whole of the immersed hull. The bottom plate in particular was heavily fouled with freshwater mussels and other marine growth. Inspection of the immersed areas of the hull was limited to the areas where the fouling was scraped away by the surveyor.
- B The engine, tanks, rudder, stern gear and all normally installed equipment were in situ. This restricted access to the internal surfaces of the hull, deck and cabin structure, thereby preventing detailed examination in these areas.
- C The mechanical condition of the engine is outside the scope of this inspection and report. No canal trial was conducted.
- D The electrical system was examined visually and by switch test only.
- E Tanks and pipework were examined visually only. No opening up was carried out. The tanks were not filled for the purpose of testing.
- F I have not inspected parts of the structure which were covered, unexposed or inaccessible. Save where expressly mentioned in this report, no dismantling was carried out except for the removal of normally portable traps and panels. It must therefore be clearly appreciated that significant areas of the internal surfaces of the hull and deck remained unavailable for close examination due to the normal presence of deckhead and side linings, locker and stowage linings, fastened down soleboards and other fixed elements of the construction. Areas of the internal hull were available for examination in the engine space, at two inspection points in the utility area, to the port side of the water tank and in the bow locker.
- G The opinions expressed in this report are given in good faith, but imply no guarantee against faulty design or workmanship.
- H The validity of any CE marking and the confirmation of conformance of the vessel to the Boat Safety Scheme, the EMC Directive and the Machinery Directive are outside the scope of this inspection and report. The inspection did not include an assessment against the requirements of any particular authority.
- I Ultrasonic thickness readings should not be interpolated into areas which were not tested, however close they may be.

## HULL – GENERAL

1. The hull was of typical narrowboat design with a flat bottom plate and a semi-traditional stern. The hull sides did not feature any tumblehome.

## HULL – TOPSIDES

2. The topsides were examined visually and slight concavity was noted in some of the plating. As the distortion was evident on both sides, it was thought to have been caused by the building process rather than by impact damage. It was considered unlikely that the distortion in the plating would have any effect on the structural integrity of the hull and it remains a minor cosmetic defect.
3. No significant dents or damage were found in the plating apart from some scuffing marks, mainly in way of the bow.
4. A full-length, D section steel rubbing strip was welded to the hull on either side, approximately half way up the topsides. A rubbing strip was also fitted round the bottom of the counter with a similar length strip at deck level. A further strip ran in the vicinity of the waterline from the start of the aft swim to the stem and a shorter strip ran from the forward bulkhead to the stem between the two strips described above. The strips they were all in serviceable condition and were securely attached being welded along their top and bottom edges.
5. Some surface corrosion was evident at the waterline along the length of the hull sides. Elsewhere there was little evidence of corrosion apart from at localised areas where the bitumen type paint coatings had suffered contact damage.

**Advisory comment:**

The hull sides should be de-scaled and all surface corrosion removed. Where the coatings are still sound and well adhered, the surfaces should be abraded to provide a key and two coats of bitumen type paint should be applied.

6. Above the upper rubbing strip, the blue gloss paint scheme had not been expertly applied, but it was in generally serviceable condition apart from some minor scuffing damage. Surface corrosion at the waterline was evident in the silver paint scheme on the stern lower panel. The upper yellow coated stern panel was in serviceable condition, but the coatings had been roughly applied.

**Advisory comment:**

The lower stern panel should be de-scaled and all surface corrosion removed. After appropriate surface preparation, a new paint scheme should be applied ensuring that there is sufficient paint thickness in way of the waterline to minimise further corrosion.

The upper stern panel should be thoroughly abraded and a new paint scheme applied to improve the cosmetic appearance of the vessel.

## HULL – BELOW WATERLINE

7. The immersed areas of the hull were examined visually and in common with the above the waterline areas, some distortion was found in the plating. No significant damage was found, but minor areas of damage could have been concealed by the heavy fouling on the underwater plating.

8. A number of random and selected points were chosen for ultrasonic thickness testing. In all, 19 points were hand-finished to bright steel and readings taken with a Meritronics Decimil 99 meter.
9. Thickness readings obtained on the hull side plates ranged from 5.9mm to 6.0mm. The readings were considered to be acceptable and were indicative of the plate being originally of 6mm nominal thickness. Localised pitting at the inspection points was estimated to be up to 0.5mm deep with little evidence of corrosion. It was difficult to judge the overall condition of the bitumen coatings because the plating was fouled, but at the inspection areas, they were judged to have little thickness.  
**Advisory comment:**  
The immersed areas of the hull should be thoroughly cleaned off and two coats of bitumen type paint applied. To minimise the development of pitting, the vessel should be docked every two years and fresh paint coatings applied.
10. Ultrasonic thickness readings obtained on the bottom and counter plates ranged between 9.7mm and 9.9mm. The readings were considered to be acceptable and were indicative of the plate being originally of 10mm nominal thickness. Minimal corrosion was found at the inspection points and localise pitting was estimated to up to 1.0mm in depth. No remedial action was considered necessary at this stage regarding the pitting.  
**Advisory comment:**  
Although the depth of the pitting on the bottom plates is minimal at present, consider removing all the fouling and painting them with bitumastic type paint each time the vessel is docked. (Pitting tends to develop on areas of exposed steel which are not protected by paint coatings).
11. The wear edges (the projection of the bottom of the hull and counter plates beyond the hull sides which protects the joint welds) were inspected and were found to be offering adequate protection  
**Advisory comment:**  
The condition of all the wear edges, especially at the turn of the fore and aft swims should be monitored at each docking. If the integrity of the welded joint between the bottom plate and the hull sides is threatened, additional rubbing strips or under shoe plates be fitted to protect it.
12. The plate welds were visually inspected at selected points and no sign of excessive wear or corrosion was found. No over-plating was found on the hull.

## INTERNAL STRUCTURE

13. The engine space was generally clean and well painted, but the area of the bottom plate directly under the stern gland had surface corrosion on it. The corrosion could easily be scraped away to reveal the underlying steel. Localised surface corrosion was evident on the starboard counter plate.  
**Advisory comment:**  
The starboard counter plate and the area of the bottom plate under the stern gear should be de-scaled and all surface corrosion removed. A paint scheme which is resistant to oil and diesel should be then applied to these areas.
14. The cabin sole was covered with glued-down tiles and fitted carpet so it was not possible to lift any of the soleboards to inspect the bilge.

15. Two traps were found in the sole board in the utility area. The inner face of the bottom plate was visible at both locations and surface corrosion was evident on it. The area of plate beneath the trap closer to the stern had a sheen of moisture on it. Under the forward trap, the bottom plate was dry. It was not possible to establish where the moisture had come from.

**Advisory comment:**

The moisture on the bottom plate may have been caused by a leak in the water system or from a fitting such as the bath drain. It equally may have been caused by condensation due to poor ventilation of the cabin bilge. The area of moisture should be dried out and monitored; if significant quantities of water gather there, the cause is likely to be a pipe or water fitting fault. Otherwise, consideration should be given to installing ventilation to keep the bilge area dry.

16. Under the forward berth, at the side of the water tank, the internal face of the port side hull plating and the bottom plate was visible. There was evidence of condensation having run off the un-insulated hull side. The bottom plate was dry, but it had some surface corrosion and building debris on it. The internal face of the hull plating was visible in the bow locker and was found to be clean and well painted.

**Advisory comment:**

Consider creating access points in the sole along the length of the cabin so that the condition of the bilge can be better assessed.

## HULL PENETRATIONS

17. The well deck drains consisted of apertures cut in the hull side. They were free of obstruction and were considered to be of adequate size. The non-ferrous fitting for the water tank on the starboard hull side was secure and was in serviceable condition from visual inspection, as was the non-ferrous fitting for the bilge pump on the starboard counter.
18. Non-ferrous fittings on the port side for: the calorifier relief valve, washing machine, galley sink, bath drain and washbasin were all secure and in serviceable condition.
19. The engine exhaust outlet was a welded fitting which was in serviceable condition as were the apertures for the LPG locker and the aft drainage channel. It was noted that the aft deck drain outlet was partially blocked with debris.

**Advisory comment:**

Through-hull fittings should be kept free of obstruction.

20. A weed hatch for access to the propeller was fitted in the aft end of the counter. It consisted of the trunking, splash plate, and cover. All these components were found to be fouled and lightly surface corroded on their external surfaces. The sealing gasket on the cover was intact but well compressed. The freeboard of the trunking was estimated to be 150mm which was considered to be acceptable.

**Advisory comments:**

The interior of the weed hatch trunking, the splash plate and cover should be cleaned, de-scaled and painted with bitumen-type paint. This should be carried out every time the hull is re-painted.

The condition of the weed hatch cover sealing strip should be checked at regular intervals and replaced as necessary.

21. No underwater hull penetrations were found.

### **STEERING SYSTEM AND STERN GEAR**

22. The steering system consisted of a steel swan-neck, steel stock and a flat plate rudder blade. The rudder was supported at its bottom end by a skeg-mounted cup bearing and the stock passed through a welded tube to a top bearing mounted on the aft deck. A brass tiller was fitted to the steel swan-neck.
23. The system was visually inspected and was found to be in serviceable condition and functional when tested "hard over to hard over." Some play was evident in the upper bearing, but no remedial action was considered necessary at this stage. It was also noted that the upper section of the rudder blade was bent and the rudder was slightly out of alignment with the tiller. The rudder blade had cut notches in the steel where it came into contact with the counterplate.

#### **Advisory comments:**

Monitor the play in the upper rudder bearing.

Check the operation of the steering system in service conditions and re-align the tiller if necessary.

Monitor the depth of the notches in the counterplate. If the integrity of the welded counter joint is threatened, fit stops to limit the rudder's travel.

24. The three bladed, 19" diameter non-ferrous metal propeller was in serviceable condition from visual inspection with only minor damage to the blade tips.

#### **Advisory comment:**

Monitor the condition of the propeller at each docking. Excessive damage to the blade tips can lead to vibration.

25. The non-ferrous metal propeller securing nut and retaining pin were in serviceable condition. The propeller shaft was lightly fouled, but where the fouling was scraped away from its outboard end, it was also in serviceable condition from visual inspection.

26. The propeller turned freely by hand and no significant play was found when it was heaved vigorously up and down. No discernible "float" was found along the axis of the propeller.

#### **Advisory comment:**

Assess the stern gear for wear at each docking.

### **CATHODIC PROTECTION**

27. Two 3.0kg sacrificial anodes were welded to either side of the stern and they were estimated to be approximately 50% depleted. One 3.0kg and one 1.5kg anode were welded either side of the bow swim, the smaller anodes were completely depleted and the larger anodes were estimated to be 50% depleted

#### **Advisory comment:**

Provision should be made for replacing the anodes in about 12 month's time

### **CABIN AND DECKS**

28. The cabin was generally fair when sighted along its length with only minor distortion in the plating. No damage to the superstructure was found. Steel integral handholds were fitted down either side of the cabin.

29. The superstructure was finished in a blue gloss paint scheme with yellow self-adhesive coach lines. The coatings on the cabin sides and side decks were in serviceable condition with only small areas of localised damage. The coatings on the cabin roof were generally intact, but in some areas, particularly around the aft hatch and at the forward end of the cabin, localised areas of surface corrosion were breaking through from the underlying steel. Some localised flaking of the paint coatings was evident, particularly in the roof drainage ports. The plywood housing over the deck hatch would benefit from painting internally.

**Advisory comment**

Localised re-coating of the paint finish on the cabin roof should be carried out where surface corrosion is breaking through and where the paint is flaking off.

## AFT DECK

30. The aft steering deck was covered with interlocking plastic matting which was in serviceable condition. The paint coatings on the steel hatch below the matting were in poor condition with surface corrosion evident. The drainage channels beneath the hatch contained a quantity of debris and were surface corroded.
- Advisory comment:**  
The aft deck hatch should be de-scaled and all surface corrosion removed. A suitable paint scheme should then be applied to it.  
Clean out the aft deck drainage channels, remove the corrosion and apply a suitable paint scheme. Ensure that the drain pipe from the deck channels is free of obstruction.
31. The boards over the engine were made of plywood and were in serviceable condition, but the exposed edges of the boards would benefit from painting to keep out moisture. There was no non-slip finish on the boards.
- Advisory comment:**  
Apply a non-slip finish to the engine deck boards.
32. The steel steps down into the cabin were covered with floor tiles of the same type as were found in the aft end of the cabin. The tiles were starting to lift off the steel in places and they were thought not to have very good non-slip qualities. It was not established how the steps drained of any rain water which collected on them. No roof hatch was fitted over the aft door and the corner of the engine housing made access into the cabin difficult.
- Advisory comment:**  
Apply a non-slip finish to the aft steps and establish how the stair well is drained. It is possible that in heavy rain, water could cascade down the steps into the cabin. One option may be to drain the steps into the engine bilge if necessary.
33. The softwood domestic type lockers on the starboard side of the semi-traditional deck area were in serviceable condition, but would benefit from varnishing. The LPG and storage lockers on the port side were fitted with plywood covers and were in serviceable condition. The cushion on top of these lockers was dirty and was not of a suitable material for external use. The paint coatings on the locker were in poor condition with numerous areas where the paint had been chipped.
- Advisory comment:**  
Replace the cushion with a PVC covered version which could withstand exposure to the elements.

Apply fresh paint coatings to the areas where the paint coatings have been chipped.

34. The folding canopy over the aft deck area was in serviceable condition, but would benefit from cleaning.

### FORWARD WELL DECK

35. The well deck sole was covered with interlocking plastic matting which was in serviceable condition, but the underlying steel sole was dirty and locally surface corroded. Surface corrosion was also evident in the port and starboard lockers, along the bottom of the lockers externally and along the bottom of the cabin bulkhead. The plywood transverse locker and the plywood locker tops were in serviceable condition.

**Advisory comment:**

Remove all surface corrosion from the areas described above and apply fresh paint coatings.

36. The steel cratch board and cratch plank were in serviceable condition as was the PVC cratch cover. The locker in the bows was dry and well painted.

### HATCHES, DOORS AND WINDOWS

37. The cabin windows were of aluminium construction with gold anodised finish. Five windows were fitted in the port cabin side and four windows on the starboard side with a single window in the forward bulkhead. They were all in serviceable condition from visual inspection and were fitted with drop-back vents. No sign of water ingress was found on the interior woodwork surrounding the windows and the seals and securing devices for the drop back vents were in serviceable condition. Externally, the plastic insert covering the frame securing screws was missing from one of the portside windows. Internally, at the radiused bottom corners of the windows, the bare steel was exposed and surface corrosion was evident.

**Advisory comment:**

To prevent condensation forming on the steel, fit wooden inserts round the bottom corners of the window frames. This will also improve the cosmetic appearance of the windows.

38. The forward cabin door was of the "stable" type and was made from plywood. They were secured by barrel bolts and a Yale type lock. The screws securing the hinges on the bottom section of the door were loose and made it difficult to push home the barrel bolts. The anodised aluminium vents in the door were in poor condition and several of the ventilation slots had been closed up by impact damage.

**Advisory comment:**

Tighten or replace the screws securing the bottom section of the forward door. The existing door vents should be replaced with solid brass versions of the same size which would be more resistant to impact damage.

39. The aft door was also of the "stable" type of similar construction and was secured by barrel bolts and a Yale type lock. The low level vents were damaged as was the case for the forward doors.

**Advisory comment:**

The aft door vents should be replaced as described in paragraph 38.

40. The steel doors in the starboard cabin side were in serviceable condition and could be secured internally with barrel bolts.
41. A brass hatch was set into the cabin roof in the galley area and was in serviceable condition from visual inspection. As with the cabin windows, bare steel was exposed at the corners of the hatch.
42. No sign of significant leaks was noted at any of the windows or doors. No hose testing was carried out on any of the openings.

**DECK FITTINGS**

43. A welded steel 'T' cleat was fitted just aft of the stemhead and was sound and secure as were the mooring ring on the cabin roof and the two bollards located on the stern. Fender eyes were riveted to the roof and were in serviceable condition as were the fairleads on the hand rails.

**D.C. ELECTRICAL SYSTEM**

44. The battery bank consisted of five service batteries and one starter battery and was located on the starboard counter in the engine space. Four of the batteries were installed in a half-height steel tray with a wooden cover. The two batteries towards the stern were only partially secured and their terminals were not covered, but the aft deck would effectively prevent accidental contact with the terminals. The batteries were in clean condition, but they were not tested other than by switch testing of the appliances. The cable terminals were of the crimped type and were generally clean and in good condition. The engine was equipped with a single alternator and alternator controller, but no auxiliary means of charging the batteries was found.

**Advisory comment:**

Secure the two batteries at the stern so that they have no more than 10mm freedom of movement in any direction, including vertically.

Test the batteries service conditions.

Verify in service conditions that the engine alternator is adequate for charging six batteries. Consider fitting a marine battery charger to ensure that the batteries can be kept fully charged.

45. The battery bank was connected to two key type isolator switches mounted on the battery trays. A split-charge relay was fitted to prevent discharge of the starter battery into the domestic bank.
46. The electrical conductors where visible in the engine space were run in plastic sheathing and were well supported. A 12v panel board with circuit breakers was located in the utility area. It was found to be functional by switch testing, but the terminal side of the panel was not seen.
47. A 1500w inverter was located in the utility area. Two heavy duty fuses were located under a wooden panel adjacent to the inverter, but it was not established whether one of these was protecting the inverter conductors. The inverter was switch tested and was found to be active.

**Advisory comment:**

Verify that the inverter is protected by an appropriate fuse.  
Check the operation of the inverter in service conditions.

48. The following dc appliances were switch tested:

<u>Working</u>	<u>Not Working</u>	<u>Not Proven</u>
Bilge pump		12v sockets
Cabin lights		Bath drain pump
Horn		
Wall lights		
Water pump x 2		
Headlight		
Refrigerator		

When the deckhead fluorescent light in the sitting area was switched on, it gave off a strong “overheating” smell.

**Advisory comment:**

Check the operation of the 12v sockets and bath drain pump

**Recommendation:**

Investigate the source of the “overheating” smell from the saloon light

**230V ELECTRICAL SYSTEM**

49. The 230v ac system could be supplied via a shoreline socket mounted on the port side of the aft bulkhead. A choice of two power sources was available: a shore line could be plugged in, or the connection from the inverter. The inverter connection was plugged in and it was found to activate the microwave oven, but the ac system was not tested with a shoreline connected.

**Advisory comment:**

Check the operation of the ac system in service conditions with a shoreline connected.

50. The ac system was equipped with a consumer box containing 8amp and 10amp circuit breakers and an RCD. It was mounted in the utility area and the power was distributed to ac three pin sockets located throughout the accommodation. It was noted that an ac type three square pin located in the cupboard aft of the bathroom was marked 12v

**Recommendation:**

Any dc sockets should be changed to the same type as is used for connecting the fridge, i.e round pin 5amp. This would prevent the accidental plugging in of a 12v appliance into a 230V socket.

51. The ac conductors were run in plastic trunking where visible in the utility area. The washing machine in the utility area was not tested.

**Advisory comment:**

Check the operation of the washing machine in service conditions

**DOMESTIC WATER AND PLUMBING**

52. A stainless steel water tank was located under the forward well deck and could be filled by a deck fitting on the well deck. Two outlets from the tank were located on the port side under the bed in the forward cabin. Each outlet was

fitted with a stop-cock and was connected by plastic piping a pump in the cupboard aft of the double bed. The pumps were heard running, but the delivery of water was erratic which may have been due to lack of water in the tank. The pumps were fitted with grit filters and a rechargeable purifying filter was fitted to the galley cold water tap.

**Advisory comment:**

Check the operation of the pumps in service conditions.

Clean out the grit filter on a regular basis.

Check the expiry date on the water purifying filter and replace as necessary.

53. The plastic galley sink and drainer were in serviceable condition from visual inspection, but had been heavily used with significant scratching in the bottom of the bowl. The swivel mixer tap was in serviceable condition from visual inspection but was not fully tested. A small plastic sink in the bathroom was in serviceable condition as were the pillar taps.

**Advisory comment:**

Check the operation of the bath and sink taps and associated pipework in service conditions.

Consider fitting a larger washbasin for residential use.

54. The bath was in serviceable condition from visual inspection, but the operation of the taps and shower head was not tested. The bath drain pump, which would logically be operated by the switch on the side of the bath, did not function. It may have been connected to a float switch.

**Advisory comment:**

Check the operation of the bath taps and associated pipe work in service conditions.

Investigate the function of the bath drain pump.

55. A cassette type toilet was installed in the bathroom with an access panel in the gangway to remove the cassette. The toilet was in serviceable condition from visual inspection, but it was taped closed and was therefore not tested. A spare cassette for the toilet was located under the washbasin.

**Advisory comment:**

Check the operation of the toilet in service conditions.

56. A horizontal, twin coil, foam lagged calorifier was located on the counter on the port side of the engine. It was connected to the cooling circuit of the engine and was the only source of hot water on board. From visual inspection, the calorifier was secure and was in serviceable condition with no sign of leaks.

**Advisory comment:**

Check the operation of the calorifier under service conditions.

If the boat is to be used for residential purposes, it may not be convenient to run the engine every time hot water is required. Also, running the engine when it is not under load can glaze the cylinder bores. Consider fitting an immersion heater so that water can be heated without running the engine

The calorifier may not contain enough hot water to be able to provide adequate water for the bath.

Consider fitting a diesel or LPG fired boiler to provide hot water and heat radiators.

## JOINERY AND FURNISHINGS

57. The cabin sole was covered with carpet tiles in the galley area which were serviceable if rather dirty. A few tiles were lifted at the aft end to reveal wood effect tiles which were bonded to the soleboards. At various locations such as inside the cupboards, the sole boards were seen there to be made from unvarnished plywood. The boards felt firm underfoot when walked on and random probing with a bradawl did not reveal any areas of softness.
58. The remainder of the cabin sole was covered with fitted carpet with bonded-on underlay, so again, it was not possible to assess the condition of the underlying soleboards in these areas. The carpet was in generally serviceable condition, but was rather dirty and was covered with cat or dog hairs.
59. At a point where one of the tongue and groove boards in the deckhead had sprung away from its neighbour, rockwool type insulation material was visible, but due to the fixed linings, it was not possible to assess its extent or condition.
60. In the accommodation, the hull sides, cabin sides and deckhead were all lined with softwood tongue and groove boards. Under the gunwhales, the boards were seen at various points to be attached to underlying plywood panels. As a result, the boards felt solid and had a generally even surface.
61. However, on the cabin sides and on the deckhead, the tongue and groove boards were thought to have been nailed directly to the soft wood noggins. As a result, the boards were not very securely attached and felt springy when just a light manual pressure was applied to them. By the aft door, the planks had distorted and were bulging out from the cabin side. Similarly, in the saloon area and bathroom, the deckhead planks had distorted creating an unsightly bulge along the centre line of the roof. Extra nails had been put through the planks in an effort to stop the bulging, but they had little effect and the planks felt springy when manual pressure was applied. At other points, where two planks were butted end to end, one of the planks had distorted so that the end was standing proud of the other plank. Overall, the lining of the cabin had been poorly executed.

**Advisory comment:**

The cosmetic appearance of the cabin lining is poor. Due to the interlocking nature of the tongue and groove planks, it is difficult to make local replacements. It could be that if the planks continue to distort, bulges could appear in other areas. The only sure way to cure all these problems would be to strip out the interior and attach all the planks to plywood backing. This of course, would be very expensive and inconvenient.

62. The bulkheads were made of board with a varnished light coloured veneer and softwood cappings. The fixed furnishings were made of a combination of veneered board and varnished softwood with domestic type "pine" doors. The doors into the walk-in cupboards also consisted of domestic type "pine" doors mounted on plywood backing panels. The doors were secured with steel surface mounting hinges which may be inadequate for the weight of the doors. Overall the furniture was not of high quality and looked "tired" and rather dirty. The exception was an incongruous mahogany type veneered side board which was in good condition.
63. Water staining was evident on the bottom of the panelling beneath the forward

berth and also around the water pumps. This may have been the result of a leak in the water system.

**Advisory comment:**

Ensure there are no leaks from the pipework in the vicinity of the water pumps.

64. The soft furnishings were in serviceable condition, but the settee was covered in pet hairs and carried an accompanying odour.

### LPG INSTALLATION

65. The LPG locker was located on the port side of the semi-traditional deck area. It contained two 12kg propane cylinders which were connected by BS3212 type 2 hoses to a double wall block manifold and single regulator. The cylinders were not secured and in the event of collision, could damage the regulator and copper pipe. The locker was well painted and had a vent aperture at its lowest point. The copper pipe from the regulator passed into the cabin via a bulkhead fitting.

**Advisory comment:**

The LPG cylinders should be secured to prevent them damaging the regulator and copper pipe.

66. The copper feed pipe to the cooker was secured along the underside of the port side deck and then inside the galley units. It was protected where it passed through wooden bulkheads. An elbow joint, test point and shut-off valve were located in the cupboard behind the cooker. The joints were not fully secured.

**Advisory comment:**

All pipe joints should be secured either side within 150mm of the joint, particularly at the connection between the shut-off valve and the flexible hose.

67. The LPG cooker was a Vanette 5000WL which was looked to have been heavily used and was rather dirty in parts. With the exception of the cooker burner which was orange tipped (indicating dirt or corrosion in the burner tube), the burner patterns were satisfactory. The system was not tested for tightness

**Recommendation:**

The cooker should be serviced. The LPG system and appliances should be periodically inspected, overhauled and tested by a CORGI engineer who is accredited for work on marine installations. The work should be carried out using ISO 10239 as a guide.

### VENTILATION

68. High level ventilation was provided by four roof-mounted brass mushroom vents which were in serviceable condition and were considered to provide adequate ventilation for the appliances onboard.
69. As described in paragraphs 38/39 the low level vents in the forward and aft doors had been damaged and need to be replaced. The solid brass vents of a similar size which are available from good chandlers would be more robust and would also provide greater ventilation.

### HEATING APPLIANCES

70. A Squirrel solid fuel stove was securely installed on a tiled hearth in the saloon area. Several of the tiles at the back of the stove had dropped off and the

underlying plywood was exposed. Scorch marks were visible on the plywood.

**Recommendation:**

The missing tiles should be replaced to protect the plywood from further heat damage.

71. From visual inspection, the stove itself was in serviceable condition, but water had run down the flue from the deck collar and caused localised surface corrosion on the exterior of the stove. The joint between the collar on top of the stove and the flue was in poor condition. Externally, the decorative chimney was in poor condition. The stove was not tested.

**Recommendation:**

The joint between the stove collar and flue should be re-made to ensure that no fumes are escaping into the cabin.

Sweep the stove flue before use.

**Advisory comment:**

The stove should be cleaned and re-painted.

Install a carbon monoxide indicator near the stove.

For residential use, consider installing a central heating system.

## ENGINE

72. The vessel was fitted with a BMC 1.8 litre 4 cylinder diesel engine, serial number: 789. It drove through a PRM 260D2 gearbox which was connected to the propeller shaft via a Centaflex type flexible coupling.
73. The engine was inspected visually and was found to be in need of cleaning, but the paintwork was largely intact and no sign of overheating was found. There were some oil deposits in the oil-tight area under the engine and gearbox, but no evidence was found of any significant oil leaks apart from a film of oil on the underside of the gearbox.

**Advisory comment:**

The oil-tight area under the engine should be cleaned, this will make it easier to identify any oil or coolant leaks which may occur.

74. The oil level in the engine was found to be up to the mark, but it was not possible to open the gearbox dipstick with the tools available.

**Advisory comment:**

Check the oil level in the gearbox and monitor its level.

75. Some fluid was found on the engine bed beneath the fuel lift pump. The fluid may have come from the pump, but it could equally have been coolant which had blown-off from the filler cap.

**Advisory comment:**

Investigate the source of the fluid on the port side engine bed.

76. The engine was cooled by a skin tank located on the port swim. From visual assessment, the skin tank looked to be rather small. The engine coolant was filled up to the brim and there was no evidence of leaks in the coolant system pipework. There was no sign of emulsification on the oil filler cap which would have indicated water contamination. The concentration of anti-freeze in the coolant system was not measured.

**Advisory comment:**

Check the performance of the cooling system in service to ensure that the skin tank is of adequate size.

Ensure that the concentration of anti-freeze in the cooling system is adequate for the winter months.

77. The engine was securely mounted on substantial steel beds and flexible mounts which were in serviceable condition from visual inspection. The stern gear was from visual inspection in serviceable condition and a serviceable remote greaser was located above it.
78. The integral diesel tank at the aft end of the engine space was fitted with a data plate which had not been filled in, but the tank was in serviceable condition from external visual inspection. The tank was equipped with vent and flame trap on the bollard and a labelled deck filler on the aft deck.

**Advisory comment:**

Ensure that the gauze on the fuel tank vent is kept clean.

79. Three tappings into the top of the fuel tank were located on the starboard side. Two of these were the feed and return to the engine and were fitted with ball valves; the centre tapping was not used and was fitted with a screwed brass cap.
80. The copper fuel pipes to the engine were well secured on the counter and were connected to the engine by ISO 7840 flexible hoses. The feed to the engine was fitted with a sedimenter which had a plastic drain plug.

**Advisory comment:**

Replace the plastic drain plug in the sedimenter with a metal version.

81. The dry exhaust system was lagged and was in serviceable condition from visual inspection, with no sign of leaks.
82. The engine panel was equipped with two voltmeters, oil pressure gauge and tachometer with hourmeter. The oil pressure gauge read 50psi at tickover, the voltmeters 14v and the hour meter 8488 (not verifiable).
83. No canal trial was conducted, but the engine was run on the short trip to the slipway. It started easily with some smoke and after a brief period of running lumpily, ran reasonably smoothly with less exhaust smoke. The throttle/gear system operated correctly.

**SAFETY**

84. The vessel was equipped with three dry powder fire extinguishers, each rated at 13A 89B. They were last serviced in 2000. A fire blanket to BS6575 was located in the galley area.

**Recommendation:**

The fire extinguishers should be serviced or replaced.

85. The rope aft fender was in fair condition, but was not long enough to afford any protection to the rudder. This may account for the top of the rudder blade being bent. The rope forward fender was in fair condition, but was not closely secured. Three plastic fenders were fitted on each side of the boat. One fender on each side had split.

**Recommendation:**

Fit an additional stern fender which is long enough to protect the rudder.

Re-secure the bow fender so that it does not ride up and catch on a lock gate, for example.

**Advisory comment:**

Replace the damaged side fenders

86. A lifebelt was found in the well deck, but no line was attached to it.

**Advisory comment:**

Attach a floating line to the lifebelt.

87. A boarding plank and a short boat hook were found on the cabin roof. The boat hook was in poor condition.

**Advisory comment:**

Replace the boat hook

Carry a boat pole on board

**Recommendation:** The full extent and condition of the vessel's safety equipment was not assessed. It is important that a complete set of well maintained and conveniently stowed safety gear is onboard whenever the vessel is underway. Adequate fire-fighting equipment should be onboard at all times.

## CONCLUSION

*No Way* was found to be in generally serviceable condition in the accessible areas inspected. There are, however, a number of areas, which require corrective action as detailed in the recommendations in this report.

Careful consideration should also be given to some of the advisory comments, in particular with regard to the quality of the interior fit-out and the condition of the tongue and groove lining

Any change of ownership must be notified to the relevant licensing authority.

**ATTENDING SURVEYOR: Jonathan Leask IEng. AMIMarEST**

**10<sup>th</sup> August 2006.**