fieldhouse yacht surveys

# CLARA

## Insurance Survey

Completed for
Anthony Barnes,
Brown Hill,
Dorking,
Surrey,
GU22 4RF
On 21/01/2013

Inside front cover

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## DATA PROTECTION

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## 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.

# 1 INTRODUCTION

1.1 This is to certify that the undersigned carried out an Insurance Survey in accordance with instructions received from Anthony Barnes of Brown Hill, Dorking, Surrey.

1.2 The primary aim of this document is to report on the factual condition of CLARA at the time of the survey. Where the equipment has been inspected or tested and found to be in an unsatisfactory condition, recommendations for rectification, repair or replacement will be detailed in this report. These recommendations will be assigned one of the five categories detailed in Appendix 1 on page 25. For clarity, all recommendations will be printed in upper case and red font thus: RECOMMENDED.

1.3 Where reference is made to the condition, this must be considered in relation to the age of the vessel.

1.4 The vessel was inspected whilst ashore on the hard-standing at Birdham Pool Marina on 21st January 2013.

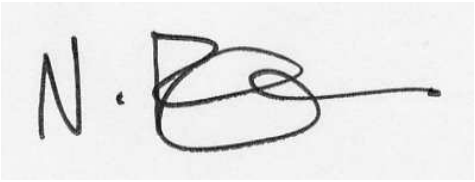
1.5 The survey was conducted by Nic Fieldhouse, Principal Surveyor of Fieldhouse Yacht Surveys.

1.6 The survey was carried out in accordance with Fieldhouse Yacht Surveys Standard Terms and Conditions and with relevant codes of practice published by the International Institute of Marine Surveying.

1.7 Those present during the survey were:

Eur Ing Nic Fieldhouse BEng (Hons) CEng MIMechE Affil-IIMS.

Marine Surveyor,
Fieldhouse Yacht Surveys.



# 2 SUMMARY

2.1 CLARA was seen to be a good example of a 1960s Falmouth Pilot – a 9 Ton ketch sailing yacht with long keel. She was built by Falmouth Boat Construction Ltd in 1965. The carvel hull seemed to be in good structural condition and retained a very good finish.

2.2 The deck & superstructure construction, rigs, engine, domestic services and interior finish were generally all in serviceable condition.

2.3 There were six **type A2 recommendations** that must be implemented before the vessel is taken cruising:

2.3.1 A number of the vessel's hoses were secured with a single stainless steel screw clip. It is RECOMMENDED (type A2 recommendation) that all hose fittings located below the waterline are fitted with two hose clips. In addition, the cockpit drain hoses should be fitted with two hose clips at each end (See paragraph 5.1.6.7).

2.3.2 It is RECOMMENDED (type A2 recommendation) that all seacocks and through-hull fittings are checked for leakage once the vessel is afloat (See paragraph 5.1.6.8).

2.3.3 Neither of the batteries were adequately tied down or secured in order to prevent movement when the vessel is at high angles of heel. It is RECOMMENDED (type A2 recommendation) that the two batteries are restrained by straps of adequate strength and these should be well attached to the hull structure (See paragraph 5.6.7.2).

2.3.4 An electric bilge pump was installed on CLARA. This pump had an automatic pump mode selected by a switch located next to the companionway steps. This pump was tested and found to operate correctly in manual mode, but not when set to automatic. The float switch was tested and found to be non-functioning. It is RECOMMENDED (type A2 recommendation) that the float switch is repaired or replaced (See paragraph 6.1.2).

2.3.5 It is RECOMMENDED (type A2 recommendation) that at least two buckets are stowed on board. These should be between 9 and 14 litres in capacity (See paragraph 6.1.3).

2.3.6 It is RECOMMENDED (type A2 recommendation) that at least two 1kg dry powder fire extinguishers are procured and installed on BANTARA (See paragraph 6.3.4).

2.4 In addition to the six type A2 recommendations, there was one **type C recommendation**:

2.4.1 The galley sink outlet hose was constructed from un-reinforced hose. It is RECOMMENDED (type C recommendation with an implementation time of one year) that this hose is replaced with one constructed from a reinforced material (See paragraph 5.1.6.6).

2.5 Once the recommendations have been addressed, there is no reason why CLARA should not continue to give good service.

# 3 SCOPE & LIMITATIONS

3.1 The vessel was inspected while she lay ashore. There was reasonable, all-round access to the exterior of the hull. The only obstructions were those presented by the two pads of the cradle and two shores. Access to the bottom of the keel was limited to the part not resting on two timber chocks.

3.2 At the time of survey the ambient temperature was approximately 0℃. Snowfall from the previous three days had settled on the boat's awning and on exposed areas of deck. During the survey this snow was brushed off the deck as much as possible, but it was still not possible to fully inspect the condition of the deck and fittings and they cannot be confirmed to be free from defect.

3.3 Internal inspection was limited to the areas that are normally accessible either directly or through lockers, inspection hatches, removable panels, etc. No part of the vessel was dismantled and no bolts were removed for inspection. No linings were removed. Consequently, any part of the vessel, her equipment or fittings, which were unexposed or inaccessible, cannot be confirmed to be free from defect.

3.4 All tanks when were inspected where access allowed but were not inspected internally. They have not been pressure tested and their contents have not been tested for contamination.

3.5 Window hatches and external doors have not been tested for water tightness.

3.6 We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are, therefore, unable to report that any such part of the structure is free from defects, rot or deterioration.

3.7 There are limitations to the examination of a vessel ashore. The masts could not be ascended with safety, so the rigs were examined as far as possible from the deck. The engine could not be started. Seacocks could not be tested for leaks, and services such as the sea toilet could not be tested. Nor was it possible to test the navigational and sailing instruments.

3.8 The vessel and her equipment were not assessed for design or suitability for any particular purpose, or compliance with any rules, regulation, standard or code.

3.9 Note that the terms "serviceable" or "serviceable condition", as used in the report, means that the item remained usable, despite possible wear or deterioration. The item may nevertheless require maintenance or replacement in due course.

# 4 THE VESSEL

## 4.1 DETAILS

| | |
|---|---|
| Name | CLARA |
| Official number | 164853 |
| Works Number | 987 |
| Built by | Falmouth Boat Construction Ltd |
| Model | 9 ton, 31 ft |
| Type | Falmouth Pilot |
| Build date | 1965 |
| Registered Tons | 5.34 Tons |
| Engine manufacturer | Perkins |
| Engine type | 4 stroke, 4 cylinder diesel |
| Engine power | 42HP |

**Table 1: Vessel Details**

4.1.1 CLARA was seen to be a 31 ft Falmouth Pilot – a 9 ton ketch rigged sailing yacht with long keel. She was built by Falmouth Boat Construction Ltd in 1965.

4.1.2 The hull of CLARA was of carvel construction, with the pitch pine hull planks secured to bent oak timbers by copper boat nails, clenched on roves.

4.1.3 The cockpit, aft cabin and coachroof superstructure were of varnished and painted wood. The sheathed plywood deck was covered in extensive areas of painted non-slip.

4.1.4 CLARA had a full-keel unbalanced wooden rudder. She had a self-draining cockpit and wheel steering operated from the cockpit. She had a ketch rig, featuring tabernacle-mounted, deck-stepped masts, a mainsail, mizzensail and roller furling headsail.

4.1.5 Accommodation was as follows: There was a double berth forward and the saloon had two settee berths with a folding table in the centre. The galley space was along the port side. A navigation station lay to starboard of the companionway. The heads were located on the port side of the forepeak. The aft cabin, accessed from the cockpit, had two berths and a washing sink supplied by a fresh water tap.

4.1.6 A Perkins four cylinder 4.107 diesel engine drove a three-bladed fixed propeller via a single shaft. One steel fuel tank was located to port of the engine.

## 4.2 DIMENSIONS

| Dimension | Metres | Feet / inches |
|---|---|---|
| Length Overall | 9.61 | 31 feet 6 inches |
| Beam | 2.85 | 9 feet 4 inches |
| Draught | 1.45 | 4 feet 9 inches |

**Table 2: Vessel Dimensions (measured)**

## 4.3 VESSEL'S NAME

4.3.1 CLARA had her name positioned on the port and starboard sides of the aft cabin, painted in gold lettering on varnished timber boards.

# 5 THE SURVEY

## 5.1 HULL EXTERIOR

### 5.1.1 General Appearance

5.1.1.1 The hull of CLARA was of carvel construction, with the pitch pine hull planks secured to bent oak timbers by copper boat nails, clenched on roves.

5.1.1.2 The hull was sighted from a distance fore & aft and visually inspected all round. The hull was in good condition. The lines were symmetrical, fair and showed no signs of sagging, hogging, flat areas or local distortion.

### 5.1.2 Topsides

5.1.2.1 The topsides were inspected visually. There were a number of minor abrasions and scratches, and some minor staining of the white paint coating in the splash-zone immediately above the waterline. There were some rust stains from the steel shroud base plates and from several planking fasteners.

5.1.2.2 The topsides were in good condition, with no signs of major trauma. The white paint system retained a very good finish. The varnished wood rubbing strake was in good condition, with no evidence of impact damage.

5.1.2.3 The topsides were hammer tested with a 150 gramme hammer, paying particular attention to the hood ends. The ring of the sound indicated that the planking was sound and well secured to the beams.

### 5.1.3 Hull Below the Waterline

5.1.3.1 The blue hull antifouling below the waterline was in fair condition but required a new application. The hull was inspected, except where surfaces were hidden behind the cradle & shores and no evidence of scratching or chipping to the hull was found.

5.1.3.2 The hull below the waterline was hammer tested with a 150 gramme hammer, paying particular attention to the hood ends. The ring of the sound indicated that the planking was sound and well secured to the beams.

### 5.1.4 Keel

5.1.4.1 The cast iron keel of CLARA was held flush to the bottom of the vessel with stainless steel studs and nuts, with large backing plates to help spread the load onto the internal structure.

5.1.4.2 The keel was inspected, except where the bottom of the keel was hidden by supporting chocks and no evidence of hard grounding or impact were found. The external surface of the keel was sound, with minor evidence of surface corrosion and pitting.

### 5.1.5 Rudder & Steering

5.1.5.1 CLARA had a full-keel unbalanced wooden rudder. It was inspected visually and found to be in serviceable condition and free from damage or cracks.

5.1.5.2 The rudder hangings consisted of three sets of metal pintles and gudgeons. On the lower hanging, the pintle, gudgeon and fasteners were made from bronze, with a stainless steel gudgeon pin. On the middle hanging (located below the waterline), the pintles, gudgeon and fasteners were made from mild steel, with a stainless steel

gudgeon pin. The mild steel items had minor surface corrosion. These should be inspected annually and replaced if found to be corroding heavily.

5.1.5.3 All fasteners were hammer tested and found to well secured and free of corrosion, apart from the minor corrosion noted in paragraph 5.1.5.2.

5.1.5.4 The rigid link, rack and pinion steering mechanism between the helm and rudder were inspected and found to be free of excessive play or wear. Pivots were well lubricated and all fasteners that could be accessed for inspection were found to be well secured and free of corrosion.

5.1.5.5 The tabernacle mounted helm was inspected and found to be adequately secured to the cockpit structure.

## 5.1.6 Skin Fittings, Valves and Seacocks

5.1.6.1 The skin fittings were all in serviceable condition. All fittings below the waterline were bronze (apart from the plastic speed impellor) and showed no signs of dezincification. The exhaust outlet, located on the waterline, was constructed from stainless steel.

5.1.6.2 Table 3 below details the material, condition and function of the skin fittings, together with the condition of the valve, hose and clips. The items in red text in Table 3 indicate a defect or poor condition of the items and are addressed in the recommendations below.

| Function | Above / Below W/L | EXTERNAL | | INTERNAL | | | | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Skin Fitting | | Valve | | | Hose | | Clips | | | |
| | | Mat. | Cond. | Type | Mat. | Cond. | Reinf. | Cond. | # | Mat. | Cond. | |
| Heads outlet | Below | Br | ✓ | Blakes | Br | ✓ | ✓ | ✓ | 1 | ss | ✓ | |
| Heads inlet | Below | Br | ✓ | Blakes | Br | ✓ | ✓ | ✓ | 2 | ss | ✓ | |
| Depth transducer | Below | Br | ✓ | - | - | - | - | - | - | - | | |
| Speed Impeller | Below | Pl | ✓ | - | - | - | - | - | - | - | | |
| Galley sink outlet | Below | Br | ✓ | Gate | Br | ✓ | x | Old/ hard | 1 | ss | ✓ | Hose hardened and not reinforced |
| Engine cooling intake | Below | Br | ✓ | 90º | Br | ✓ | ✓ | ✓ | 1 | ss | ✓ | |
| Manual bilge pump outlet | Above | Br | ✓ | - | - | - | ✓ | ✓ | 1 | ss | ✓ | |
| Electric bilge pump outlet | Above | Br | ✓ | - | - | - | ✓ | ✓ | 1 | ss | ✓ | Float switch not working |
| Engine exhaust | W/L | ss | ✓ | - | - | - | ✓ | ✓ | Clips not seen | | | |
| Cockpit drain x2 | Below | Br | ✓ | Gate | Br | ✓ | ✓ | ✓ | 1 | ss | ✓ | |
| Anode | Below | Zn | See section 5.1.7 | | | | | | | | | |

| | | | |
|---|---|---|---|
| W/L | Waterline | Pl | Plastic |
| Mat. | Material | ss | Stainless Steel |
| Cond. | Condition | ms | Mild Steel |
| Br | Bronze | Zn | Zinc |

**Table 3: Function and condition of skin fittings, valves, hoses and clips**

5.1.6.3 No skin fittings, seacocks or valves were dismantled as part of the survey but the following tests were performed:

- Examination from outside and inside the vessel
- All valves opened and closed to their full extent
- Where accessible, the fixing bolts and nuts were hammer tested
- The through-hull fittings, valves and seacock bodies were hammer tested
- The fittings were aggressively tested to assess their security of attachment to the hull
- Hose clips were inspected and hoses were aggressively tested

5.1.6.4 There was clear access inside the vessel to all valves and seacocks, except for the heads inlet and outlet where accessibility was limited.

5.1.6.5 The cockpit drains and galley sink outlet were all found to be fitted with gate valve type seacocks. These were inspected and found to be in good working order. The cockpit drain skin fitting on the starboard side was nearly new. Gate valve type seacocks are made from several parts and sometimes these parts can be of different materials, which can lead to galvanic corrosion. This disadvantage, combined with the fact that it is not possible to tell at a glance whether the valve is open or closed, makes them less suitable than the more common 90° turn valve. Consider ation should be given to replacing the gate valves with 90° turn valves constr ucted from bronze or DZR brass.

5.1.6.6 The galley sink outlet hose was constructed from un-reinforced hose. It is RECOMMENDED (type C recommendation with an implementation time of one year) that this hose is replaced with one constructed from a reinforced material.

5.1.6.7 A number of the hoses were secured with a single stainless steel screw clip. It is RECOMMENDED (type A2 recommendation) that all hose fittings located below the waterline are fitted with two hose clips. In addition, the cockpit drain hoses should be fitted with two hose clips at each end.

5.1.6.8 It is RECOMMENDED (type A2 recommendation) that all seacocks and through-hull fittings are checked for leakage once the vessel is afloat.

### 5.1.7 Anodes

5.1.7.1 A pear anode (210mm between centres) was through-bolted to the hull on the starboard side, one metre forward of the propeller. The anode was approximately 90% intact. The electrical connection between the anode and the stern bearing was tested with a multimeter and the resistance found to be approximately 0.01Ω, which is better than the minimum recommended resistance of 1.0 Ω. It was found that no continuity could be established between the anode and propeller or shaft.

## 5.2 HULL INTERNAL STRUCTURE

### 5.2.1 Hull Internal Structure

5.2.1.1 Within the aft cabin, saloon and forepeak, there were a number of removable sole boards. These were all lifted in order to inspect the internal hull and structure.

5.2.1.2 The pitch pine hull planks were secured to bent oak timbers by copper boat nails, clenched on roves. The timbers were 1” moulded x $1^{3}/_{4}$” sided, with a spacing of 9”. Additional strength was given by oak stringers. Wooden floors were located at various spacings, with limber holes to assist drainage between bilge compartments

5.2.1.3 A number of the wooden floors were strengthened by galvanised steel floors, attached to the wooden floors by stainless steel bolts. These showed evidence of minor surface corrosion but were otherwise found to be secure.

5.2.1.4 The bottom of the keel bilge was found to be sealed by a pitch-like substance. This material was in good condition and was well adhered to the internal faces of the

planking and timbers.

## 5.2.2 Ballast

5.2.2.1 A number of lead blocks were loosely stowed under the saloon seating, port side.

## 5.2.3 Bulkheads

5.2.3.1 The timber bulkheads, including the aft cabin bulkhead, were inspected and found to be generally in satisfactory condition. It was however found that the aft cabin bulkhead timber was softening and discolouring on the exterior surface where it meets the cockpit sole.


**Figure 1: Aft cabin bulkhead**

## 5.2.4 Engine Beds

5.2.4.1 The engine beds were examined and found to be sturdily built and were free of signs of cracks or deformation.

## 5.2.5 Keel Bolts & Studs

5.2.5.1 The cast iron keel of CLARA was held flush to the bottom of the vessel with stainless steel studs and nuts, with large backing plates to help spread the load onto the internal structure.

5.2.5.2 Additional support to the keel was provided by the galvanised steel floors, which were in turn through-bolted to the timber floors with stainless steel fasteners. The steel floors had a horizontal flange. Large galvanised steel bolts passed through these flanges and into the keel.

5.2.5.3 The stainless steel studs and galvanised steel bolts that were accessible were hammer tested and were found to be secure. The exterior visible surfaces of the studs, nuts and backing plates were free from corrosion.

## 5.3 DECK AND EXTERNAL FITTINGS

### 5.3.1 Deck and Coachroof

5.3.1.1 The sheathed plywood deck was in good condition. There were no signs of damage to the sheathing material or evidence of delamination from the plywood deck. The blue pigmented non-slip coating was in good condition. Full inspection of the deck exterior surfaces was restricted by the covering of snow.

5.3.1.2 Particular attention was paid to the condition of the coachroof around the foot of each mast. No cracks or deformation were noted in the deck or underlying timbers.

5.3.1.3 On the aft deck there was a gas storage locker constructed from solid timber and secured to the deck. See section 5.6.5 for details of the inspection of the gas locker.

### 5.3.2 Cockpit

5.3.2.1 The cockpit floor, seats and coaming were all in sound condition with the varnish work in fair condition. Refer to paragraph 5.2.3.1 for details of wood softening on the aft cabin bulkhead.

5.3.2.2 In the cockpit area there were two hinging lockers on the starboard side and one on the port side. The starboard side lockers gave access to the vessel's 12 V master switches, batteries, manual bilge pump, stern bearing greaser and to the steel water tank. The port side locker gave access to the diesel fuel tank and the engine pull-stop handle.

5.3.2.3 The hinges of the cockpit lockers were inspected and found to be well secured and to function correctly.

5.3.2.4 A manual 2½" Whale bilge pump was located in the starboard locker. This was tested and found to function correctly.

5.3.2.5 Access to the main cabin was from the cockpit hatch, located on the forward, starboard side of the cockpit. The wooden sliding hatch and four-piece washboard were inspected and found to be in good condition.

5.3.2.6 Access to the aft cabin from the cockpit was through a double hinging timber door located on the starboard side of the cockpit. The wooden sliding hatch and door were inspected and found to be in good condition, but with some deterioration of the varnish work.

### 5.3.3 Hatches

5.3.3.1 One solid wood foredeck hatch, with an opening of approximately 600 x 600mm, was installed in the roof of the forepeak. This size meets the recommendation for the minimum dimension to allow escape in an emergency, which is 380mm (BS EN ISO 9094-1:2003, Small Craft - Fire Protection). The hatch was well made, free of rot and found to be securely attached and showed no signs of water ingress. At the time of inspection, this hatch was covered by a blue canvas rain cover. This was found to be in good condition.

### 5.3.4 Ports, Windows and Ventilation

5.3.4.1 CLARA had a total of six inward hinging round ports, with frames and closures constructed from chrome plated brass. Two were located in the forepeak, two in the saloon and two in the aft cabin. The toughened glass in each port was in good condition. The cork seals in the saloon ports were slightly cracked, but none showed any signs of water ingress.

5.3.4.2 The four non-opening windows in the sides of the saloon coachroof were toughened glass in aluminium alloy frames. They were in serviceable condition and showed no sign of water ingress.

5.3.4.3 There was one closable roof vent in the aft cabin and one in the forepeak. These were in serviceable condition and functioned correctly

5.3.4.4 Two dorado vents were located on either side of the main mast on the coachroof. Both were in serviceable condition.

### 5.3.5 Deck Fittings and Equipment

5.3.5.1 There were four chrome plated brass fairleads fitted to the toerails. Two were located at the bow and two at each of the stern quarters. All were inspected and found to be adequately secured to the toerails.

5.3.5.2 There were five wooden mooring cleats: three on the foredeck and two at the rear quarters. All were inspected and found to be adequately secured to the deck.

### 5.3.6 Grab Rails

5.3.6.1 Two hardwood grab rails were fitted to the saloon coachroof and one was fitted to the port side of the aft cabin. They were in good condition and were found to be securely mounted.

### 5.3.7 Guard Rails

5.3.7.1 The vessel was fitted with a pulpit, side stanchions and pushpit.

5.3.7.2 The pulpit was a four point deck mounted unit and constructed of 25 mm outside diameter stainless steel tube. It was found to be secure and in good order.

5.3.7.3 The side stanchions were 600 mm high, 25 mm diameter stainless tubular steel construction and fitted with twin 1 x 19 construction 6 mm diameter upper and 4 mm diameter lower safety wires. Both wires on each side featured stainless steel pelican hooks at a location near to the cockpit. The stanchions, pelican hooks and safety wires were found secure and in good order.

5.3.7.4 The pushpit was a four point, deck mounted unit, constructed of 25 mm outside diameter stainless tubular steel and was found secure and in good order.

### 5.3.8 Boarding Ladder

5.3.8.1 A varnished timber & brass boarding ladder was stowed in the forepeak. It was found to be sturdily built and free of damage or deformation.

### 5.3.9 Tender & Outboard Motor

5.3.9.1 A Tinker Tramp inflatable tender was stowed in the aft cabin. The tender was fitted with a wooden slatted sole and wooden transom and was found to be in good condition without damage or debonding of the seams.

5.3.9.2 A 2-stroke, 2.5HP Yamaha outboard motor was inspected. Year of manufacture labelled as 2001. It was not seen running but was inspected externally and found to be in good condition with only minor evidence of surface corrosion. Figure 2 shows the engine's identification data.


**Figure 2: Outboard motor identification label**

## 5.4 RIGGING AND SAILS

### 5.4.1 Masts & Booms

5.4.1.1 The wooden masts could not be ascended with safety, so the rigs were examined as far as possible from the deck.

5.4.1.2 Both masts were in sound condition and were varnished to a high standard, with no signs of cracking or physical damage.

5.4.1.3 It is advisable to take the masts down for a full inspection every few years, as part of the routine maintenance programme. In the short term, closer examination of the masts, spreaders and masthead gear would be possible once the boat is afloat.

5.4.1.4 The boom and gooseneck on both masts were found to be in serviceable condition and free of excessive wear.

### 5.4.2 Mast Tabernacles

5.4.2.1 The welded steel mast tabernacles were inspected and found to be free of distortion or damage, but with some minor surface corrosion. The steel deck fastenings were well painted but with some corrosion seeping through the paint coating. They were adequately secured.

### 5.4.3 Rigging Chain Plates

5.4.3.1 The painted steel chain plates for the shrouds and backstays were all of the strap variety, secured with steel bolts through the hull planking and internal stringers. They were closely examined and found to be free of cracks and generally free of corrosion. The chain plates were found to be adequately secured through the deck, with sufficiently sized backing plates and no evidence of undue strain on the mountings.

5.4.3.2 The stainless steel forestay chain plate was examined and found to be free of corrosion, adequately secured to the hull and with no evidence of undue strain on the mountings. The steel / iron bow rollers were corroded but turned freely.

### 5.4.4 Standing Rigging

5.4.4.1 The standing rigging on each mast comprised twin lower shrouds and a cap shroud passing over single spreaders. There was a twin backstay on each mast terminating at the toe rail on the side decks. The forestay was formed by the headsail reefing foil.

5.4.4.2 It was reported by the owner that the wire rigging was last replaced in 2001. To be safe, stainless steel standing rigging should be replaced every ten years if she is just cruised.

5.4.4.3 The standing rigging was formed from 1x19 stainless steel wire, with swaged terminals secured to the chain plates by toggles and bottle screws. The main mast wires were 7 mm diameter and the mizzen mast wires were 6 mm diameter.

5.4.4.4 The swaged terminals were inspected and appeared to be in sound condition, with no signs of bending, splitting, cracking or other failure.

5.4.4.5 As far as could be ascertained, those parts of the shrouds and stays that could be inspected from the deck appeared to be serviceable. The owner should appoint a rigger if a second opinion or a full survey of the rig is required.

5.4.4.6 The Rotostay roller furling equipment was tested as far as practical and found generally in good working order. The furling line was not fitted. The drum was examined and no defects were seen in either the bearings or in the rigging screw attachment. The aluminium alloy tube appeared to be straight and with no kinks.

### 5.4.5 Winches & Travellers

5.4.5.1 Headsail sheet travellers were mounted on the toe rails. The stainless steel tracks were securely mounted and in serviceable condition.

5.4.5.2 Two Tuph-fittings winches with Tufnol drums were located in the cockpit, securely mounted to the sides of the coaming. They were found to be in serviceable condition. The handles were stowed in the saloon.

### 5.4.6 Sails

5.4.6.1 The white mainsail and the white mizzen sail were stowed on their booms during the survey. The sail covers were partially removed and the sails examined without hoisting. The soft ‘feel’ of the cloth suggested that both sails may have lost some of their original shape. The sails were found to be generally clean and well maintained, but with some evidence of mildew.

5.4.6.2 The foresail was not on the vessel at the time of survey.

### 5.4.7 Canvas

5.4.7.1 A blue canvas spray hood was installed on the vessel. This was in good condition with clear, un-damaged plastic windows. The tie-down fittings were in good order.

5.4.7.2 A blue mainsail cover and mizzensail cover were fitted over the sails. The covers and fastenings were in acceptable condition.

5.4.7.3 A blue canvas hatch cover was fitted over the forehatch and the stern locker hatch. They were both in good condition and fitted properly.

## 5.5 PROPULSION

### 5.5.1 Engine & Transmission

5.5.1.1 CLARA was fitted with a Perkins 4-107 four cylinder diesel engine, with fresh water cooling, driving through a reduction gearbox. Engine control was via a single Morse lever, giving forward and reverse gears and throttle control, mounted next to the helm in the cockpit.

5.5.1.2 The engine could not be started with the vessel ashore, so it was not possible to fully evaluate its condition.

5.5.1.3 The engine bearers were securely mounted, and the flexible rubber engine mounts were in sound condition. The mounting bolts were tight. Externally, the engine was clean and in fair condition, with only minor evidence of oil leaks. The alternator belt appeared to be correctly tensioned. There was no evidence of leakage from the cooling system.

5.5.1.4 Access to the engine's coolant impeller, alternator, raw water strainer, oil filter and oil dipstick were good.

5.5.1.5 Engine exhaust and cooling water were discharged through a muffler box and an armoured flexible hose, to a hull fitting on the port side, positioned on the vessel's waterline.

5.5.1.6 The engine stop pull handle was mounted in the port cockpit locker. It operated with full and free movement but could not be fully tested without the engine running.

## 5.5.2 Fuel System

5.5.2.1 There was one painted mild steel fuel tank mounted in the port cockpit locker. Access to the fuel tank was from the locker and from the engine bay. The visible parts of the fuel tank were clean and generally free of damage but with minor surface corrosion.

5.5.2.2 The fuel lines and clips were in sound condition.

5.5.2.3 The glass-bowl primary fuel filter was in sound condition.

5.5.2.4 A fuel shut-off valve was located immediately inboard of the fuel tank and was accessed by lifting the forward-most cockpit sole board or through the locker opening.

## 5.5.3 Stern Gear

5.5.3.1 The 16½" diameter, three-bladed (fixed) bronze propeller was in fair condition, with minor damage to the blade tips. It was noted that two of the blades had an area of corrosion on their aft faces, approximately 10mm in diameter and towards the tip of the blades. Figure 3 shows one such area of pitting.

5.5.3.2 As noted in paragraph 5.1.7.1, there was no electrical continuity between the anode and the propeller. It was not established during the survey whether the anode was wired to the engine or gearbox casing, but it is advised that a connection is made between the anode and the propeller shaft in order to minimise any galvanic corrosion that may occur in the propeller.

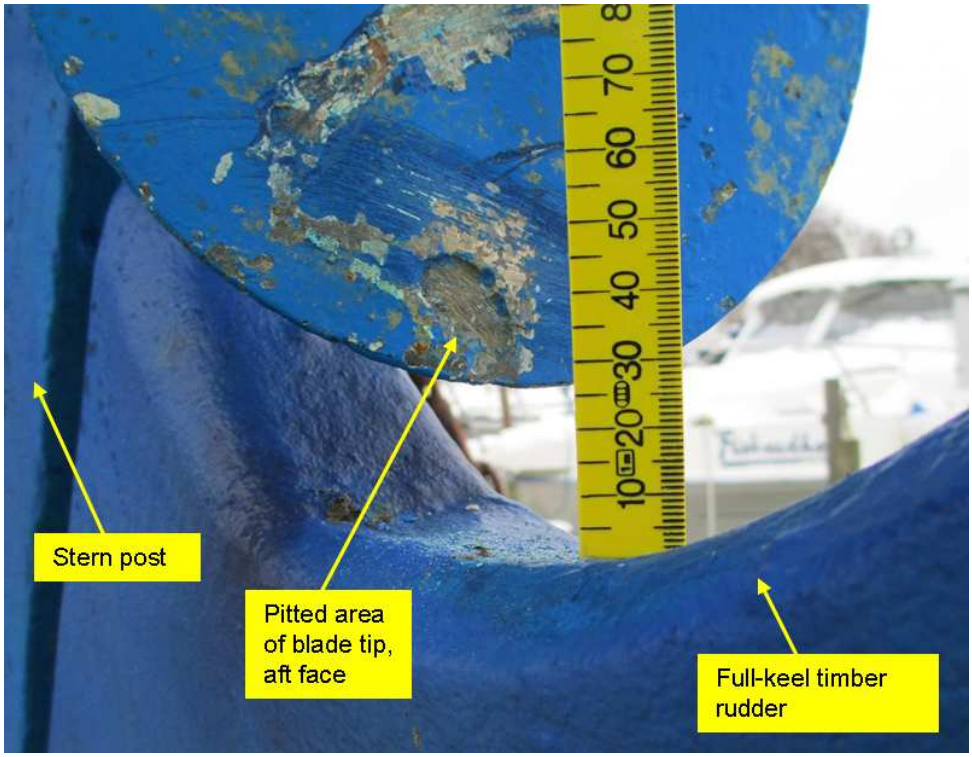



**Figure 3: Pitting on propeller blade, aft face**

5.5.3.3 The bronze castle nut that secures the propeller to the shaft was locked using a stainless steel split pin. Both were in good condition.

5.5.3.4 The exposed section of the stainless steel propeller shaft was in good condition and as far as could be ascertained, the alignment appeared to be correct.

5.5.3.5 There was a small amount of wear (approximately 0.5mm in the vertical and 0.25mm in the athwartships) between the propeller shaft and stern bearing. The wear should be checked annually and the bearing material replaced when the wear increases to approximately 1mm.

5.5.3.6 The mechanical seal on the stern tube appeared to be in good condition, as was the shaft coupling. The seal will nevertheless need to be checked for leakage when the vessel is afloat, and with the engine running in gear.

5.5.3.7 The grease pump for the stern gland was mounted inside the starboard cockpit locker. This was found to be in serviceable condition.

## 5.6 SYSTEMS AND SERVICES

### 5.6.1 Anchor and Chain

5.6.1.1 The Bruce anchor was lashed to the windlass at the time of the survey. It was inspected and found to be free of wear and corrosion.

5.6.1.2 The anchor was secured to a length of short plain linked galvanised steel chain by two galvanised steel shackles. The anchor chain was made from short plain linked galvanised steel. The dimensions of the chain were $^{3}/_{8}$" diameter x 32 x 46 mm. The chain and shackles were in good condition, free of wear and with only minor surface corrosion.

5.6.1.3 The chain was fed through the deck, via a hawse pipe to a chain locker located

beneath the forepeak berth

5.6.1.4 A CQR type kedge anchor and length of chain was stowed in the locker on the aft deck.

## 5.6.2 Anchor Windlass

5.6.2.1 The Simpson Lawrence manually operated windlass was installed on the foredeck. This windlass was inspected and found to be in satisfactory condition and adequately secured to the deck structure.

## 5.6.3 Fresh Water System

5.6.3.1 There was one painted, welded steel fresh water tank located in the starboard cockpit locker. Where access allowed, the tank was inspected and found to have surface rust, but was otherwise in sound condition. The tank was adequately secured to the surrounding structure.

5.6.3.2 The water system supplied cold water to one manually operated tap in the galley and to one in the aft cabin. The system was empty at the time of survey and could not be tested.

## 5.6.4 Heads

5.6.4.1 The sea toilet was clean and the pump appeared to be serviceable. The toilet was a Simpson Lawrence SL400 manual pump type. The installation could not be tested while the vessel was ashore.

5.6.4.2 The toilet hoses were constructed from suitable quality reinforced hose. The toilet outlet hose extended upwards behind the toilet to form an anti-siphon loop of adequate size. There was no anti-siphon loop in the inlet hose. The toilet seacocks should be kept closed when at sea.

## 5.6.5 LPG Installation

5.6.5.1 The gas storage locker was positioned on the aft deck and was constructed from solid timber with a latching lid and was adequately secured to the deck. This locker provided storage for one 4.5kg butane gas cylinder. Any gas leakage from the cylinder locker would immediately drain overboard via the deck scuppers.

5.6.5.2 Connected to the gas cylinder was a tap and pressure regulator. These were found to be clean and free from corrosion.

5.6.5.3 Flexible rubber hose then led to a pipe connection at the bottom of the gas locker. Copper tubing then led the supply through the aft cabin, engine bay area and to the galley area, terminating at an isolating cock. An armoured flexible hose conveyed the gas supply to the cooker.

5.6.5.4 The gas hose in the cylinder storage locker had a date stamp of July 2008. The armoured hose at the cooker had a date stamp of March 2008. The copper pipe was adequately supported at regular intervals.

5.6.5.5 The Plastimo Neptune 2500 twin hob and grille installation (serial number 856800, 5.02 kW output) was secured by a gimbal mechanism to the galley structure. The two hob burners and grille were lit and were found to burn with a clear blue flame.

5.6.5.6 The installation was not further inspected or pressure tested for leaks.

5.6.5.7 Note that this survey is not any kind of gas safety certificate. This is only obtainable

after comprehensive pressure testing and assessment by a qualified person listed on the gas safety register. See http://www.gassaferegister.co.uk for further details.

## 5.6.6 Galley

5.6.6.1 There was one square stainless steel sink mounted in the athwartships galley surface. The sink was fed by a manually operated tap. The system was empty at the time of survey and could not be tested.

5.6.6.2 There was one drawer in the galley and one cupboard beneath the sink. Plates and crockery were stowed on shelves behind the cooker. The work surfaces were not fitted with fiddles. The galley units were all in satisfactory condition.

## 5.6.7 Electrical System

5.6.7.1 CLARA had a 12 volt dc electrical system, with an engine starting battery and a second battery for services. The batteries were located on the starboard side of the engine in an adequately ventilated area.

5.6.7.2 Neither of the batteries were adequately tied down or secured in order to prevent movement when the vessel is at high angles of heel. It is RECOMMENDED (type A2 recommendation) that the two batteries are restrained by straps of adequate strength and these should be well attached to the hull structure.

5.6.7.3 Battery charging was from the engine alternator.

5.6.7.4 Two on-off quarter-turn battery switches isolated power from the engine battery and the domestic battery. These switches were mounted in the starboard cockpit locker. Domestic power was then distributed via a switch panel above the galley sink. There were switches for mast lights, instrument panel and navigation instruments.

5.6.7.5 The wiring that could be seen appeared to be serviceable. All the interior lights were in working order.

5.6.7.6 The engine control panel was provided with suitable instruments and alarms for effective engine condition monitoring. Dials included battery voltage for each battery, oil pressure, alternator output, coolant water temperature and engine speed. The function of these controls was not tested.

## 5.6.8 Navigation Lights

5.6.8.1 A transom mounted stern light was adequately attached to the pushpit.

5.6.8.2 A steaming light unit was mounted on the mast.

5.6.8.3 Port & starboard lights were mounted on the pulpit.

5.6.8.4 The above lights were tested and found to function correctly.

## 5.6.9 Navigation Equipment

5.6.9.1 CLARA was equipped with a Sestrel bracket mounted compass, positioned on the coachroof, just forward of the helm.

5.6.9.2 A Navman VHF DSC radio, model number VHF 7100, serial number 4-5-V-04-4280 was mounted above the chart table. This unit powered up when switched on but was not tested for transmit or receive quality.

5.6.9.3 A Garmin GPS 128 was installed at the chart table area. This unit powered up when

switched on and subsequently gave a latitude & longitude position.

5.6.9.4 A B&G depth sounder repeater was mounted above the chart table. This unit powered up when switched on but the accuracy of the depth measurement could not be assessed.

5.6.9.5 A Raymarine ST60+ speed & distance display screen was mounted above the chart table. This unit powered up when switched on.

## 5.7 ACCOMMODATION AND DÉCOR

5.7.1 The interior was painted white to a good functional standard. Bulkheads and doors were varnished. The joinery remained in good overall condition.

5.7.2 The cabin sole was in fair condition.

5.7.3 The bunk and seating covers were not on board at the time of survey.

5.7.4 The plywood table functioned correctly and was able to fold and stow correctly.

5.7.5 The plywood door that gave access to the heads & forepeak was were found to be in serviceable condition and closed correctly.

# 6 SAFETY EQUIPMENT

## 6.1 BAILING / BILGE PUMPING

6.1.1 A manual 2½" Whale bilge pump was located in the starboard locker. This was tested and found to function correctly.

6.1.2 An electric bilge pump was also installed on CLARA. This pump had an automatic pump mode selected by a switch located next to the companionway steps. This pump was tested and found to operate correctly in manual mode, but not when set to automatic. The float switch was tested and found to be non-functioning. It is RECOMMENDED (type A2 recommendation) that the float switch is repaired or replaced.

6.1.3 It is RECOMMENDED (type A2 recommendation) that at least two buckets are stowed on board. These should be between 9 and 14 litres in capacity.

## 6.2 DETECTION EQUIPMENT

6.2.1 Two 'rain catcher' type and one tube type radar reflectors were stowed in the forepeak.

6.2.2 There was one fog horn (hand-held compressed gas) found on the vessel. The air cylinder was empty. One new compressed gas fog horn was also found stowed in the saloon. The gas cylinder on this horn was recharged using a bicycle pump, also present.

## 6.3 FIRE FIGHTING EQUIPMENT

6.3.1 One 0.8 kg B C powder fire extinguisher was mounted in the cockpit, just next to the helm position. The expiry date on this extinguisher could not be verified.

6.3.2 One 0.5 kg B C powder fire extinguisher was mounted in the galley area, just next to the companionway steps. The expiry date on this extinguisher was 'end 2010'.

6.3.3 One 1.0 kg A B C powder fire extinguisher with pressure gauge was stowed in a saloon locker. When inspected, the plastic operation lever on this unit fractured, leaving the extinguisher inoperable.

6.3.4 It is RECOMMENDED (type A2 recommendation) that at least two 1kg dry powder fire extinguishers are procured and installed on CLARA.

6.3.5 It is suggested that an automatic or semi-automatic fire extinguisher is installed in the engine compartment.

6.3.6 A fire blanket was located in the galley area, within easy reach of the cooker.

## 6.4 FIRST AID KIT

6.4.1 Two First Aid kits were stowed in a saloon locker.

## 6.5 CARBON MONOXIDE ALARM

6.5.1 There was no Carbon Monoxide alarm installed on CLARA. Consideration should be given to installing one on a vessel with an internally mounted engine.

## 6.6 GAS ALARM

6.6.1 There was no gas alarm installed on CLARA. Consideration should be given to installing one on a vessel with a gas installation.

## 6.7 LIFEJACKETS & HARNESS LINES

6.7.1 No lifejackets were found on the vessel at the time of survey.

6.7.2 Four safety harnesses were stowed in a saloon locker.

## 6.8 MAN OVERBOARD RECOVERY EQUIPMENT

6.8.1 Two red and white horseshoe buoys were stowed in the aft cabin. One buoy was fitted with a light, attached by a length of line.

## 6.9 PYROTECHNICS

6.9.1 One coastal distress flare pack (Ocean Safety) was found on board. The pack contained two red hand flares, two orange hand smokes and two red parachute rockets. They had an expiry date of December 2013.

6.9.2 One coastal distress flare pack (Pains Wessex) was found on board. The pack had an expiry date of December 2008.

## 6.10 LIFERAFT

6.10.1 A 4 man Seago liferaft was stowed in its hard case in the saloon. The liferaft was not opened up for inspection.

6.10.2 Serial number of liferaft: G123456

6.10.3 Type: RAFT-G-4

6.10.4 Date of next service was not marked on the case.

# Appendix 1. Types of Recommendations Used in This Report

The recommendations detailed within the body of this report are presented in five categories and are classified as follows:

Type A1 Structural, mechanical or other defects requiring IMMEDIATE attention i.e. those affecting structural strength, seaworthiness or safety which MUST be repaired BEFORE the vessel is relaunched at this time.

Type A2 Structural, mechanical or other defects affecting strength, seaworthiness or safety which may be repaired after the vessel is relaunched but MUST be repaired before the vessel is taken to sea.

Type B Defects not affecting strength, seaworthiness or safety but which, by their nature, should be dealt with before putting the vessel afloat.

Type C Structural, mechanical or other defects NOT requiring immediate attention but are to be dealt with within a specified time period.

Type D Non-essential or cosmetic defects whose repair may be left to the Owner's convenience. All suggestions are, unless noted otherwise, of this type.

These recommendations are intended to be only a guide to necessary rectification work. Both type A and type B recommendations cover urgent remedial work to be carried out as soon as practical. Type C recommendations cover significant remedial works to be carried out within the specified time period. It should also be noted that, in some instances, defects are noted within this report without a covering recommendation. In such cases either no action is necessary or the remedy is self-evident.