fieldhouse yacht surveys

# REGAL COMMODORE 272

## Pre Purchase Survey


Completed for
James Wilson,
6 Hill Lane,
Hinton,
Wiltshire,
DE55 5PJ
On 17/03/2012

Inside front cover

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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.

## LIMITATIONS

Where access was restricted by fixed panels, linings etc, it was not possible to examine the vessel behind these and it cannot be stated that these areas are free from defects.

# 1 INTRODUCTION

1.1 The primary aim of this document is to report on the factual condition of REGAL COMMODORE 272 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 6.5.1 on page 25. For clarity, all recommendations will be printed in upper case and red font thus: RECOMMENDED .

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

1.3 This survey was carried out in accordance with instructions received from James Wilson of 6 Hill Lane, Hinton, Wiltshire.

1.4 The vessel was inspected whilst ashore on her trailer at Morgan's Marina, Brightlingsea, Essex, on 17th March 2012.

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 agreed 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 |
| James Wilson | Client |

# 2 SUMMARY / RECOMMENDATIONS

2.1 REGAL COMMODORE 272 was seen to be a fair example of a 1996 Regal Commodore 272 Motor Cruiser. The GRP hull seemed to be in good structural condition and retained a fair finish with a good gloss level.

2.2 The gel-coat of the topsides was found to be in sound condition with no signs of major trauma or stress cracking. The gel-coat generally retained a good level of gloss with only minor evidence of UV degradation. There were small cosmetic scuff and scratch marks from mooring fenders and mooring buoys.

2.3 Below the waterline there was no evidence of scratching or chipping to the hull and gel-coat. Moisture readings were typical of a boat of this age and construction.

2.4 The vessel's electrical systems were found to be in generally serviceable condition.

2.5 The interior furnishings were very damp and were beginning to deteriorate. The sources of the leaks should be determined so that the interior can be dried out and maintained so that no further deterioration occurs.

2.6 There were seven **type A1 recommendations** that MUST be repaired BEFORE the vessel is relaunched. Please refer to Appendix 1 for a full description of the categories of recommendations used in this report.

2.6.1 The skin fitting for the toilet intake was found to be partially blocked by excessive application of antifouling. It is RECOMMENDED (type A1 recommendation) that the paint is removed from these holes to maximise the flow of water through to the toilet (see paragraph 5.1.5.5).

2.6.2 It is RECOMMENDED (type A1 recommendation) that for both stern drives, new anodes are installed at locations the bottom of the gimbal housing, front of gearcase (above anti-ventilation plate) and in the exhaust passage (see paragraph 5.1.6.3).

2.6.3 The port engine was found to be seized. It is RECOMMENDED (type A1 recommendation) that the port engine is removed from the vessel and fully overhauled by a qualified and experienced marine engine mechanic (see paragraph 5.4.2.8).

2.6.4 The starboard engine alternator outer casing was broken. It is RECOMMENDED (type A1 recommendation) that the alternator is replaced (see paragraph 5.4.3.5).

2.6.5 The starboard engine alternator and other drive belts were very loose and were found to be wearing at a high rate. It is RECOMMENDED (type A1 recommendation) that these belts are replaced and correctly tensioned (see paragraph 5.4.3.6).

2.6.6 On the starboard engine one of the coolant hoses that fed into the exhaust manifold was found to be heavily kinked and was severely restricting the flow of water around the engine. It is RECOMMENDED (type A1 recommendation) that this hose is replaced with a custom moulded hose that provides the correct shape and curvature (see paragraph 5.4.3.7).

2.6.7 In consideration of the condition of the port engine (seized) and the large number of engine spares receipts found within the vessel's paperwork, it is RECOMMENDED (type A1 recommendation) that the starboard engine is fully inspected by a qualified and experienced marine engine mechanic (see paragraph 5.4.3.11).

2.7 There are eleven **type A2 recommendations** that must be addressed after the vessel is relaunched but MUST be repaired before the vessel is taken cruising.

2.7.1 It is RECOMMENDED (type A2 recommendation) that all seacocks and through-hull fittings are checked for leakage once the vessel is afloat (see paragraph 5.1.5.6).

2.7.2 It is RECOMMENDED (type A2 recommendation) that all seacocks and through-hull fittings have a softwood bung lightly attached to the associated hose. These can be used to stem the flow of water if the skin fitting or seacock were to fail (see paragraph 5.1.5.7).

2.7.3 Access to the engine bay was provided by the upward & rearward hinging of the cockpit sole, which was lifted by a hydraulic strut. The method of attachment of the strut to the cockpit sole was very poor and the concentrated load had damaged the sole. Additionally, the brass pivot pin was deformed and inadequately secured. It is RECOMMENDED (type A2 recommendation) that the strut connection to the sole is stiffened by a large aluminium backing plate which is bonded, screwed and laminated in place. The brass pin must also be replaced by a stainless steel shoulder bolt, secured by a nyloc nut (see paragraph 5.3.3.9).

2.7.4 Attached to the shackle hole at the end of the anchor were two ‘rapid link’ attachments, separated by a swivel joint. It is RECOMMENDED (type A2 recommendation) that the three fittings are removed and replaced with one marine grade galvanised steel or stainless steel shackle (see paragraph 5.5.1.2).

2.7.5 Two automatic bilge pumps and float switches were located in the bilge area between the two engines. Only one of the pumps was found to function correctly. It is RECOMMENDED (type A2 recommendation) that the defective bilge pump is repaired or replaced (see paragraph 6.1.1).

2.7.6 It is RECOMMENDED (type A2 recommendation) that two buckets are stowed for the purpose of bailing water. These should be between 9 and 14 litres in capacity (see paragraph 6.1.2).

2.7.7 There was one halon fire extinguisher (automatic operation) mounted on a bulkhead in the engine bay. The unit did not have a pressure gauge and was manufactured in 1995. It is RECOMMENDED (type A2 recommendation) that this extinguisher is replaced (see paragraph 6.3.1).

2.7.8 A dry powder extinguisher was located next to the galley area. This extinguisher had no visible expiration date and no pressure gauge. It is RECOMMENDED (type A2 recommendation) that this extinguisher is replaced. Additionally, the new extinguisher should be located in a prominent position in the cabin (see paragraph 6.3.3).

2.7.9 There was no fire blanket on the vessel. It is RECOMMENDED (type A2 recommendation) that a fire blanket is installed and located within easy reach of the cooker (see paragraph 6.3.4).

2.7.10 There was no anchor ball found on board. This is required by COLREGS. It is RECOMMENDED (type A2 recommendation) that one is procured and stowed ready for use (see paragraph 6.5.2).

2.7.11 There were no flares found on board. It is RECOMMENDED (type A2 recommendation) that an inshore flare pack is kept on board (see paragraph 6.5.3).

# 3 SCOPE

3.1 The vessel was inspected whilst ashore on her trailer. The only obstructions were those presented by the trailer supports. It was not possible to ascertain the condition of the hull in these areas.

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

3.3 We have not inspected GRP 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 defect.

3.4 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.

3.5 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 | REGAL COMMODORE 272 |
| Hull ID number | RGARM 125J6754 |
| RCD Sea Category | C |
| Built and fitted out by | Regal Boats Inc, USA |
| Model | Commodore 272 |
| Type | Sports Cruiser |
| Build date | 1996 |
| Engine manufacturer | Volvo Penta |
| Engine type | Twin Petrol, V6, 4.3 litre |
| Engine power | 190 HP per engine |

**Table 1: Vessel Details**

4.1.1 REGAL COMMODORE 272 was seen to be a fair example of a 1996 Regal Commodore 272 Motor Cruiser, built by Regal Boats, USA. The vessel layout consisted of a foredeck with narrow side decks leading past the cockpit screen to the cockpit and bathing platform.

4.1.2 The interior of the vessel consisted of a galley along the port side and heads compartment on the starboard. Forward was a cushioned saloon area with central, removable table. The double berth was located under the cockpit area.

4.1.3 The hull was moulded in one piece with hand laid GRP, made up of polyester resin, mixed-strand fibreglass mat and woven rovings finished with a white pigmented gel-coat.

4.1.4 The topsides were coated with unpainted white-pigmented gel-coat. Red & blue trim stripes ran the length of the hull on both sides, just above the waterline.

4.1.5 REGAL COMMODORE 272 was fitted with two Volvo Penta 4.3Gs engines. These were V6 petrol units with normal aspiration (non turbocharged). Each engine drove a propeller through a Volvo Penta SX Cobra stern drive. The single fuel tank was made from welded aluminium plate and was located under the cockpit floor.

## 4.2 DIMENSIONS

| Dimension | Metres | Feet / inches |
|---|---|---|
| Length maximum | 8.2 | 26 ft 11 inch |
| Beam maximum | 2.8 | 9 ft 2 inch |
| Draught, with outdrives down | 1.0 | 3 ft 3 inch |

**Table 2: Vessel Dimensions (Published data)**

## 4.3 VESSEL'S NAME

4.3.1 REGAL COMMODORE 272 did not have her name positioned at any location on the outside of the vessel. The Bill of Sale found on the vessel at the time of survey, plus a Completion of Sale document gave evidence of the vessel's name.

4.3.2 It is suggested that the name of the vessel is painted clearly on either bow and on the stern of REGAL COMMODORE 272.

## 4.4 INSPECTED DOCUMENTATION

During the course of the survey, the following documents were inspected:

### 4.4.1 Bill of Sale

Notification of sale of REGAL COMMODORE 272 to Janet Rehill on 12th August 2010.

### 4.4.2 Sales receipts

A number of spare parts receipts were examined. These were all for engine spares for the two V6 Volvo Penta engines.

# 5 THE SURVEY

## 5.1 HULL EXTERIOR

### 5.1.1 Material & Details of Construction

5.1.1.1 The hull was moulded in one piece with hand laid GRP, made up of polyester resin, mixed-strand fibreglass mat and woven rovings finished with a white pigmented gel-coat.

5.1.1.2 The hull was sighted from a distance fore and aft and visually inspected all round. Her lines were symmetrical, fair and true, with no signs of distortion or deformation.

### 5.1.2 Topsides

5.1.2.1 The topsides were coated with unpainted white-pigmented gel-coat. Red & blue trim stripes ran the length of the hull on both sides, just above the waterline

5.1.2.2 The topsides were inspected visually. The gel-coat was found to be in sound condition with no signs of major trauma or stress cracking. The gel-coat generally retained a good level of gloss with only minor evidence of UV degradation. There were small cosmetic scuff and scratch marks from mooring fenders and mooring buoys.

5.1.2.3 The gel-coat around the stainless steel D-loop fastened to the bow (used to secure the vessel to the trailer) was slightly chipped, possibly due to the impact of the D-loop on a pontoon or similar rigid object.

5.1.2.4 There were star cracks in the gel-coat around the two D-loops mounted on the stern of REGAL COMMODORE 272. The surrounding hull material was inspected and the stiffness of the GRP was found to be normal, indicating that the cracks were limited to the gel-coat only.

5.1.2.5 The rubber / aluminium toe rail was found to be in fair condition and generally well secured to the hull. All fixings were well secured.

### 5.1.3 Hull Below the Waterline

5.1.3.1 No evidence of scratching or chipping to the hull and gel-coat was found.

5.1.3.2 Close inspection of the hull and surface coatings revealed no evidence of blistering or other damage attributable to water penetration.

5.1.3.3 The grey hull antifouling below the waterline was fresh but had been hastily applied over coats of flaking antifouling, leaving a slightly uneven surface.

### 5.1.4 Moisture Readings

5.1.4.1 Moisture readings were taken using a Tramex Skipper Plus capacitance type moisture meter. The readings recorded below are from the meter operating in the ‘deep’ mode, which measures deep into the laminate and are on a relative scale of 0 to 100. Readings were taken both above and below the waterline in order to obtain a comparison. Note that these readings are relative and do not indicate a moisture content as a percentage of dry weight. High moisture content is not generally a structural defect and is to be expected in boats of this age. Where some moisture has been absorbed, the likelihood of moisture related problems occurring are higher. When this occurs, the actual state of the laminate cannot be completely guaranteed without destructive testing and chemical analysis. The opinion given in this survey report is

based on all the evidence available at the time but without destructive testing.

5.1.4.2 Moisture readings taken over the topsides gave values of around 20.

5.1.4.3 Below the waterline, readings between 40 and 60 were measured. These values are typical for a vessel of this age and construction.

## 5.1.5 Skin Fittings, Valves and Seacocks

5.1.5.1 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

5.1.5.2 There was clear access inside the vessel to all valves and seacocks.

5.1.5.3 All fittings below the waterline were bronze, were in serviceable condition and showed no signs of dezincification.

5.1.5.4 It was not possible to survey all the associated spigots and pipe work in detail. All that we were able to survey appeared in satisfactory condition with the connections in good order, secure and no evidence of water ingress or leakage.

5.1.5.5 The skin fitting for the toilet intake was found to be partially blocked by excessive application of antifouling. Figure 1 shows that the majority of the holes in the grille are covered by paint. It is RECOMMENDED (type A1 recommendation) that the paint is removed from these holes to maximise the flow of water through to the toilet.

**Figure 1: Partially blocked skin fitting grille**

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

5.1.5.7 It is RECOMMENDED (type A2 recommendation) that all seacocks and through-hull fittings have a softwood bung lightly attached to the associated hose. These can be

used to stem the flow of water if the skin fitting or seacock were to fail.

### 5.1.6 Anodes

5.1.6.1 One zinc anode was found on the starboard stern drive, located on the front of the gearcase, above the anti-ventilation plate (location B in Figure 2). This anode was 50% consumed. The equivalent anode on the port stern drive was completely wasted.

5.1.6.2 Referring to Figure 2, there were no anodes found at location A, indicating that these had completely wasted.

5.1.6.3 It is RECOMMENDED (type A1 recommendation) that for both stern drives, new anodes are installed at locations A (bottom of gimbal housing), front of gearcase, above anti-ventilation plate) and C (in exhaust passage).

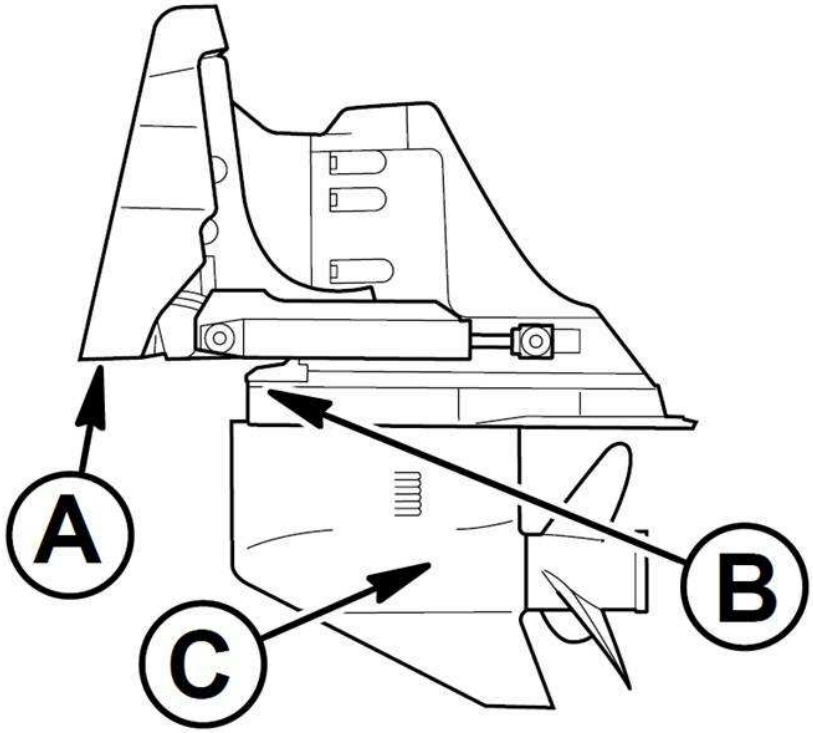



**Figure 2: Locations of anodes on SX Cobra stern drives**

## 5.2 HULL INTERNAL STRUCTURE

### 5.2.1 General Appearance

5.2.1.1 The hull was stiffened by glassed-in foam stringers. In areas that could be accessed for inspection, there was no evidence of separation of the stringers from the hull.

### 5.2.2 Internal Moulding

5.2.2.1 Additional hull stiffness was provided by an internal moulding, constructed from hand laid GRP and finished with a white pigmented gel-coat. The internal moulding was in sound condition, with no evidence of cracking or damage.

### 5.2.3 Engine Beds

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

## 5.3 DECK AND EXTERNAL FITTINGS

### 5.3.1 Hull / Deck Join

5.3.1.1 The external face of the deck joint was concealed behind rubber & aluminium rubbing strip running the full length of the vessel. The rubbing strips were screwed to the hull.

5.3.1.2 As far as could be ascertained, the hull to deck joint appeared to be sound and in areas that could be accessed for inspection, there was no evidence of water ingress to the vessel interior through this joint.

### 5.3.2 Deck & Coachroof Moulding

5.3.2.1 The deck moulding was a balsa cored GRP composite, finished with white pigmented gel-coat. It incorporated the decks, coachroof, cockpit and bathing platform.

5.3.2.2 Structurally the deck seemed to be in serviceable condition, with no signs of damage or delamination between core and skin.

5.3.2.3 On the decks and coachroof, the gel-coat was found to be in sound condition with only minor scuff and scratch marks. The gel-coat generally retained a good level of gloss and appeared to be well polished with no evidence of UV degradation.

5.3.2.4 There was one star-shaped crack on the port side of the coachroof. The surrounding structure was inspected and the stiffness found to be similar to that of the coachroof on the starboard side. This indicates that the damage was limited to the gel-coat and not the underlying laminate.

### 5.3.3 Cockpit

5.3.3.1 The cockpit floor and combing were all in sound condition, with no evidence of cracking or crazing, except for one location: The step immediately aft of the saloon entrance had a stress crack along the aft edge. This crack was due to loading from the crews' weight and occurs at the stress concentration created by the corner of the cockpit step.

5.3.3.2 In the cockpit area there was one storage locker beneath the aft seat. This locker provided storage for warps, spare engine oil, anchor and other equipment. Access to this locker was gained by lifting up the seat or from an aft facing lid located just forward of the bathing platform. There was evidence of minor gel-coat cracking on the lid (star shaped crack) and also a small gel-coat crack on the upper port corner of the locker surround.

5.3.3.3 Another locker was positioned on the port coaming, just aft of the saloon entrance. This locker provided access to the 12 volt battery master switch and the fuses for the bilge pump and the music sound system's memory. A location for two mooring fenders was provided on the starboard side of this locker. An adequately mounted stainless steel rail kept the fenders securely located.

5.3.3.4 Access to the main cabin was from the cockpit door, located on the port side of the cockpit. The sliding hatch and two-piece hinging door were inspected and found to be in good condition and functioned correctly.

5.3.3.5 The helm and associated controls were on the starboard side of the cockpit. Refer to section 5.4.4 for details of engine controls.

5.3.3.6 The cockpit screen was constructed from toughened glass in aluminium frames. Some parts of the rubber sealing around the glass was found to be perished and may be contributing to some of the rain water ingress into the cockpit and around the dashboard area. The central portion of the screen hinged outwards, giving access to the foredeck.

5.3.3.7 A single arm windscreen wiper was mounted in front of the helm. This was tested and found to function correctly.

5.3.3.8 The green canvas canopy was inspected and found to be in acceptable condition. The canvas was generally in fair condition with some damage at the buttons used to secure the canopy to the cockpit coaming. The plastic windows were generally clear and unscratched but with some evidence of ultraviolet degradation along their lower edges.

5.3.3.9 Access to the engine bay was provided by the upward & rearward hinging of the cockpit sole. The lifting force was by means of a hydraulically powered strut. The method of attachment of the strut to the cockpit sole was very poor and the concentrated load had damaged the sole, resulting in a deformed laminate. Figure 3 shows the location of the damage. Additionally, the brass pivot pin was deformed and inadequately secured. It is RECOMMENDED (type A2 recommendation) that the strut connection to the sole is stiffened by a large aluminium backing plate which is bonded, screwed and laminated in place. The brass pin must also be replaced by a stainless steel shoulder bolt, secured by a nyloc nut.

**Figure 3: Damage to cockpit sole from engine access lifting strut.**

## 5.3.4 Bathing Platform

5.3.4.1 The bathing platform was constructed from the same moulding as the deck and coachroof. The bathing platform was inspected visually. The gel-coat was found to be in sound condition with no signs of major trauma, but with minor stress cracks on the starboard side of the platform deck area. The gel-coat generally retained a fair level of gloss with only minor evidence of UV degradation.

### 5.3.5 Chain Locker & Bulkhead

5.3.5.1 The anchor chain and rope was stowed in the chain locker but the anchor was stowed in the cockpit aft locker. In normal use, the chain and rope is fed from the deck, over the anchor windlass (see section 5.5.1.1) and into the locker through a hawse pipe. The locker was inspected and found to be adequately attached to the hull and generally free of damage.

### 5.3.6 Deck Covering

5.3.6.1 A non-slip surface on the deck and coachroof was provided by a moulded-in texture in the gel-coat. This was found to be in good condition and free from significant wear or damage.

### 5.3.7 Hatches

5.3.7.1 One aft hinging Bomar hatch was installed in the roof of the fore deck. This hatch was trapezoidal in shape with aperture dimensions 390mm (fore-aft) and 415 (forward width) & 530mm (aft width). 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)

5.3.7.2 The hatch was found to be securely attached but showed signs of water ingress. The opaque polycarbonate material was cracked and had therefore lost some of its strength.

### 5.3.8 Ports, Windows and Ventilation

5.3.8.1 There were a total of four opening port windows mounted in the sides of the coachroof. Three were located in the saloon area and one in the heads compartment. These hatches were made from one-piece moulded polycarbonate plastic and were all slightly crazed.

5.3.8.2 All four opening windows showed evidence of water ingress as the interior surfaces around the hatches were damp and slightly stained. The rubber seal and mating surfaces of each hatch should be thoroughly cleaned in order to improve the efficiency of the seal.

5.3.8.3 There were two non-opening ports that provided light to the aft berth area. The polycarbonate material was slightly crazed.

### 5.3.9 Deck Fittings and Equipment

5.3.9.1 There were six stainless mooring cleats: Two on the foredeck, two on the aft deck and two at the vessel's mid-ships. All were inspected and found to be constructed to a high standard and adequately secured to the deck.

5.3.9.2 A single stainless steel grab rail was mounted horizontally, just above the deck of the bathing platform. It was found to be in good condition and securely mounted.

### 5.3.10 Guard Rails

5.3.10.1 The pulpit was a fourteen point, deck mounted unit, constructed of 25 mm outside diameter stainless steel tube and was in good order, well secured and swept from the bow to the vessel's mid-ships.

### 5.3.11 Boarding Ladder

5.3.11.1 A tubular welded stainless steel boarding ladder was attached to the underside of the bathing platform. It was found to be adequately secured and free from deformation but with some surface corrosion. The lower half of the ladder slid down to a point well below the waterline, which is a useful feature for man overboard recovery.

### 5.3.12 Tender

5.3.12.1 The grey Compass tender was inspected and found to be in good condition. The wooden transom and floorboards were in sound condition and free from rot. The tender was stowed in a blue canvas storage bag.

## 5.4 PROPULSION

### 5.4.1 Engines & Transmission

5.4.1.1 REGAL COMMODORE 272 was fitted with two Volvo Penta 4.3Gs engines. These were V6 petrol units with normal aspiration (non turbocharged). Each engine drove a propeller through a Volvo Penta SX Cobra stern drive.

5.4.1.2 Engine speed control was via pivot control levers located on the starboard side of the helm position in the cockpit. Forward and reverse gear was selected by a push-pull control linkage.

5.4.1.3 The tilt mechanism of stern both drives operated correctly.

5.4.1.4 Where access allowed, the stern drive bellows and clips were found to be in serviceable condition.

5.4.1.5 The engine starting method was by electric starter motor.

5.4.1.6 The electrically powered engine bay blower fan was found to function correctly.

5.4.1.7 The absence of any known service history for the engines, combined with the defects detailed below, suggests that the engines have not been properly maintained.

### 5.4.2 Port Engine

5.4.2.1 The port engine hour meter indicated 459.7 hours.

5.4.2.2 The engine was mounted on securely fastened bearers, with the flexible rubber mounts in sound condition.

5.4.2.3 The engine oil was inspected and found to be clean, with no visual evidence of water contamination.

5.4.2.4 At the time of survey, the inlet hose to the coolant pump was disconnected.

5.4.2.5 The engine and stern drive were examined externally - without opening up - and found in generally good, clean condition. The machinery was superficially clean, free of rust and oil leaks. There was no obvious sign of cracking in any parts of the engine or stern drive. There was no evidence of overheating.

5.4.2.6 The exhaust was of the wet type and the manifold and pipe appeared to be sound, without breaks or fractures and there was no sign of carbon deposits indicating either gas or other leaks into the machinery space.

5.4.2.7 An attempt was made to start the engine. The starter motor solenoid was heard to

move forward but the engine did not turn. Further inspection revealed that the spark plugs had been removed from their sockets and the cylinders were therefore exposed to the atmosphere. A spanner was attached to crank shaft pulley nut and an attempt was made to turn over the engine manually but the engine was found to be seized. It is not known whether the seizing had occurred as a result of overheating or corrosion of the piston rings to the cylinder barrels.

5.4.2.8 It is RECOMMENDED (type A1 recommendation) that the port engine is removed from the vessel and fully overhauled by a qualified and experienced marine engine mechanic.

## 5.4.3 Starboard Engine

5.4.3.1 The starboard engine hour meter indicated 458.8 hours.

5.4.3.2 The engine was mounted on securely fastened bearers. The outboard, forward engine mount was found to be heavily corroded, possibly due to a water leak from the water pump or hose attachment. This mount should be replaced.

5.4.3.3 The engine oil was inspected and found to be clean, with no visual evidence of water contamination. The oil level was slightly low.

5.4.3.4 The engine and stern drive were examined externally - without opening up - and found in generally good, clean condition. The machinery was superficially clean with some surface rust in the area around and below the water pump. There was evidence of a minor oil leak near to the starter motor. There was no obvious sign of cracking in any parts of the engine or stern drive. There was no evidence of overheating.

5.4.3.5 The alternator outer casing was broken where the belt adjustment bolt was normally attached. A poor repair has been made where an additional fastening hole has been machined into the casing. This was preventing the belts from being suitably tensioned and was applying stresses to the alternator casting for which it was not designed. It is RECOMMENDED (type A1 recommendation) that the alternator is replaced.

5.4.3.6 The alternator and other drive belts were very loose and were found to be wearing at a high rate, as indicated by the large quantity of belt dust on adjacent parts of the engine. It is RECOMMENDED (type A1 recommendation) that these belts are replaced and correctly tensioned.

5.4.3.7 One of the coolant hoses that fed into the exhaust manifold was found to be heavily kinked and was severely restricting the flow of water around the engine. Figure 4 shows the hose. It is RECOMMENDED (type A1 recommendation) that this hose is replaced with a custom moulded hose that provides the correct shape and curvature.

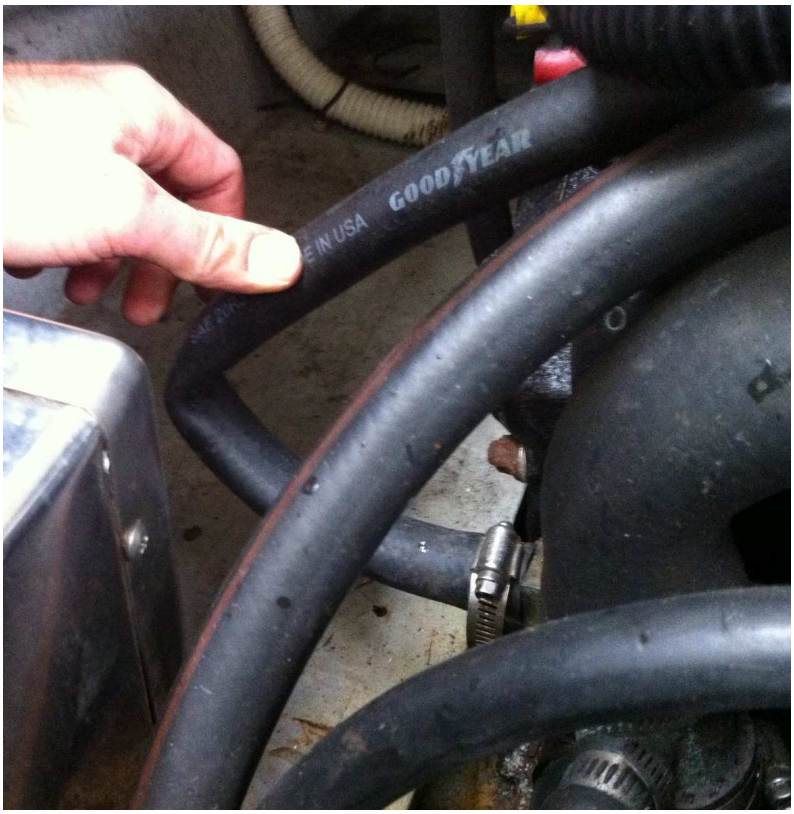



**Figure 4: Restriction in starboard engine cooling hose**

5.4.3.8 The exhaust manifold and pipe appeared to be sound, without breaks or fractures and there was no sign of carbon deposits indicating either gas or other leaks into the machinery space.

5.4.3.9 The engine started readily from cold without any excessive smoke. The engine was only run for approximately two minutes as the alternator & pulley belts were very loose and the kink in the coolant hose (Figure 4) was increasing the risk of engine and coolant pump damage.

5.4.3.10 No fuming was noted in the engine space. No leaks from the fuel and exhaust systems were evident.

5.4.3.11 In consideration of the condition of the port engine (seized) and the large number of engine spares receipts found within the vessel's paperwork, it is RECOMMENDED (type A1 recommendation) that this engine is fully inspected by a qualified and experienced marine engine mechanic.

## 5.4.4 Engines Controls

5.4.4.1 The helm and associated controls were on the starboard side of the cockpit.

5.4.4.2 The helm dashboard consisted of instruments for the monitoring of the engines. Instruments included boat speed, engine revs, fuel level, alternator output voltage, oil pressure, engine temperature, trim tab adjustment. Due to the very short time that the starboard engine was running, these instruments were not tested.

5.4.4.3 A switch panel was mounted to port of the helm wheel and contained the following switches & circuit breakers: engine blower, steaming & aft light, bilge pump, windscreen wiper, horn, deck spotlight & rotation, floor lights, ejector seat, anchor, engine cover lift.

### 5.4.5 Fuel System

5.4.5.1 The single fuel tank was made from welded aluminium plate and was located under the cockpit floor.

5.4.5.2 The thickness of the plate could not be ascertained.

5.4.5.3 There was no visible fuel stop tap fitted to the outlet pipe of the tank.

5.4.5.4 The fuel filler cap was located on the starboard side of the bathing platform and was found to be suitably labelled.

5.4.5.5 Access to the fuel tank was limited. The visible parts of the fuel tank were clean and free of damage and corrosion. The method of support of the underside of the fuel tank could not be ascertained; therefore the size and quality of the fuel tank supports could not be evaluated.

5.4.5.6 The fuel filters, fuel lines and connections were in sound condition.

5.4.5.7 The fuel piping ran clear of the bilges and appeared to be in good condition with no signs of corrosion, mechanical damage and was suitably earthed.

### 5.4.6 Propellers

5.4.6.1 The fixed pitch, three-bladed propellers were made from stainless steel. They were examined and found in generally good condition with no damage to either the tips or the leading and trailing edges and there was no sign of corrosion in the metal. The propeller blades were also individually sighted for obvious signs of deformation and none was found. It was not possible to check the condition of the shaft key and keyway.

## 5.5 SYSTEMS AND SERVICES

### 5.5.1 Anchor and Chain

5.5.1.1 At the time of the survey the anchor was stowed in the cockpit aft locker. The galvanised Delta Fast Set anchor (weight not known) was inspected and found to be free of wear, damage or corrosion.

5.5.1.2 Attached to the shackle hole at the end of the anchor were two ‘rapid link’ attachments, separated by a swivel joint. One of the ‘rapid link’ fittings was corroded. A swivel joint should not be used in such an application as the level of wear and therefore the strength of the swivel can not be ascertained. It is RECOMMENDED (type A2 recommendation) that the three fittings are removed and replaced with one marine grade galvanised steel or stainless steel shackle.

5.5.1.3 The anchor chain was made from short plain linked galvanised steel. This chain was spiced to a length of anchor rope and were stowed in the fore deck anchor locker.

5.5.1.4 The bitter end of the anchor rope should be attached to a length of suitably sized line. The bitter end of the line should be tethered to a secure point in the chain locker by a short length of line that could easily be cut in an emergency.

### 5.5.2 Anchor Windlass

5.5.2.1 The Simpson Lawrence Horizon 500 electrically operated windlass was installed on the foredeck. This painted aluminium windlass was inspected and found to be in fair condition and adequately secured to the deck structure. Areas of paint on the outer casing were flaking off.

5.5.2.2 The windlass was tested and found to function correctly.

## 5.5.3 Fresh Water System

5.5.3.1 At the time of survey the fresh water system was drained down and therefore could not be tested.

5.5.3.2 The fresh water filler cap was located on the fore deck and was found to be suitably labelled.

5.5.3.3 A single water tank was located in the main saloon, at the forward end of the seating area. The water tank was located behind a timber cover that was securely fastened to the internal moulding, therefore could not be inspected.

5.5.3.4 The water pump was located beneath the port seat in the saloon. Water was supplied via plastic tubing to the heads shower & sink and galley sink.

5.5.3.5 Hot water was provided by a calorifier located forward of the starboard engine. The calorifier was heated by the starboard engine cooling water or from the 120 volts ac power supply.

5.5.3.6 Where accessible, the fresh water system was inspected and found to be in serviceable condition. Pipes and joins were inspected and found to be free from deterioration, damage, distortion, kinking and signs of leakage.

## 5.5.4 Black Water System

5.5.4.1 Black water from the toilet was stored in a holding tank. The location of the tank could not be ascertained but the passage of the waste pipes suggests that it was located on the starboard side of the fuel tank.

5.5.4.2 Where accessible, the black water system was inspected and found to be in serviceable condition. Pipes and joins were inspected and found to be free from deterioration, damage, distortion, kinking and signs of leakage.

5.5.4.3 The pump out access cap was on port side of bathing platform and was found to be suitably labelled.

## 5.5.5 Security

5.5.5.1 The cockpit door and sliding hatch were lockable with a single key lock. The lock was positioned on the sliding hatch and was activated by pushing the barrel down, engaging into a latch on the hinging door. The mechanism operated adequately but would not prevent access by a determined intruder.

## 5.5.6 Electrical System

5.5.6.1 REGAL COMMODORE 272 had a 12 volt dc electrical system, with an engine starting battery and one battery for domestic power. The 110 Ah batteries were located on the port side of the engine bay in an adequately ventilated area. The batteries were securely tied down to prevent movement.

5.5.6.2 Battery charging was from two alternators (one on each engine) and also from shore power via a Sterling Power Products battery charger.

5.5.6.3 A quarter-turn battery switch isolated power from the engine battery and domestic battery. Domestic power was then distributed via a switch panel. This panel had eight contact breaker switches and was labelled for the following: main, water pressure (fresh water pump), macerator, refrigerator, cabin lights, shower pump.

5.5.6.4 A Panasonic radio and CD player was positioned below the microwave oven. The radio was tested and found to function correctly.

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

5.5.6.6 A shore power inlet socket was found on the port side deck.

5.5.6.7 230 volts ac shore power was fed to the vessel's 230 volt sockets via an RCD switch panel located just aft of the galley area.

5.5.6.8 110 volts ac power was supplied by a 230 to 110 volts transformer, located next to the batteries in the engine bay. Power was then fed to the vessel's 110 volt sockets (American) and to the 110 volt ac switch panel. This panel controlled the power to the water heater, electric stove, power sockets, converter and microwave oven.

### 5.5.7 Navigation Lights

5.5.7.1 A transom mounted stern light was adequately attached to the stern. Red and green lights were mounted on the bow. A steaming light unit was mounted on a pole that was attached to the cockpit screen. These lights were tested and only the steaming light was found to function.

### 5.5.8 Navigation Equipment

5.5.8.1 REGAL COMMODORE 272 was equipped with the following equipment:

Lowrance 520c chartplotter and GPS unit, serial number 101430197. This item was in serviceable condition and functioned correctly.

Ritchie compass, mounted at helm position

Uniden MC535 VHF (non-DSC) radio, serial number 06007493. The radio was switched on but was not tested for transmit or receive operation.

An electric warning horn was installed on the vessel. This was tested and found to function correctly.

A search light was mounted on the pulpit. The light operated but appeared to be dim. The electrically operated azimuth rotation of the light functioned correctly.

## 5.6 ACCOMMODATION AND DÉCOR

### 5.6.1 Main Saloon

5.6.1.1 The soft furnishings were examined and found to be damp. The cushion below the fore deck hatch was wet and the covering was rotten in one area.

5.6.1.2 The coachroof sides and ceiling were covered in a white carpet material. This was damp in places and was slightly stained by water ingress.

5.6.1.3 The beige carpet was dirty and in poor condition.

5.6.1.4 The lockers beneath the saloon seating were generally clean and dry. The starboard cupboard between the saloon seating and the heads compartment was damp, with the smell of rotten wood. Inspection revealed that some of the interior cupboard structure was entirely rotten. The source of the water ingress should be determined and the wood structure replaced.

### 5.6.2 Galley

5.6.2.1 The galley was equipped with a single electric hob (110 volts ac. A Tappan microwave oven (110 volts ac) was located above the sink. This was tested and found to function.

5.6.2.2 The stainless steel sink was supplied with hot & cold water by a monobloc tap.

5.6.2.3 The cupboard under the sink was found to contain rainwater.

5.6.2.4 A Norcold refrigerator was located under the cooker hob. This unit was powered by 110 volts ac electricity. It was found to be clean but with some corrosion to the fridge surround.

5.6.2.5 The fixtures and fittings of the galley were inspected and were found to be in good condition and generally free from damage.

### 5.6.3 Aft Berth

5.6.3.1 The aft berth was accessed from the main cabin. The berth mattress was found to be in fair condition but damp.

### 5.6.4 Heads

5.6.4.1 The heads compartment was situated in the main cabin and on the starboard side of the vessel. The sides of the compartment were finished with melamine panelling and GRP finished in a white gel-coat.

5.6.4.2 The electric flushing toilet was clean and in full working order.

5.6.4.3 The oval stainless steel sink was served with hot & cold water by a monobloc tap that also extended to provide a shower head.

5.6.4.4 The fixtures and fittings of the heads were inspected and were found to be in fair condition and generally free from damage.

### 5.6.5 Trailer

5.6.5.1 At the time of survey, REGAL COMMODORE 272 was positioned on her own yard trolley. This trailer was not built for towing this vessel on public roads. It had four road wheels on two axles and a standard 2” trailer hitch. The trailer was constructed from welded rectangular steel sections. The steel had superficial surface rust and the paintwork was old and flaking.

# 6 SAFETY EQUIPMENT

## 6.1 BAILING / BILGE PUMPING

6.1.1 Two automatic bilge pumps and float switches were located in the bilge area between the two engines. Only one of the pumps was found to function correctly. It is RECOMMENDED (type A2 recommendation) that the defective bilge pump is repaired or replaced.

6.1.2 It is RECOMMENDED (type A2 recommendation) that two buckets are stowed for the purpose of bailing water. These should be between 9 and 14 litres in capacity.

## 6.2 SIGNALLING EQUIPMENT

6.2.1 An electrically operated horn was installed on REGAL COMMODORE 272. This was tested and found to function correctly.

## 6.3 FIRE FIGHTING EQUIPMENT

6.3.1 There was one halon fire extinguisher (automatic operation) mounted on a bulkhead in the engine bay. The unit did not have a pressure gauge and was manufactured in 1995. It is RECOMMENDED (type A2 recommendation) that this extinguisher is replaced.

6.3.2 There was one dry powder extinguisher located next to the helm in the cockpit area. There was no expiry date on the unit but the pressure gauge indicated that the extinguisher was correctly pressurised.

6.3.3 A dry powder extinguisher was located next to the galley area. This extinguisher had no visible expiration date and no pressure gauge. It is RECOMMENDED (type A2 recommendation) that this extinguisher is replaced. Additionally, the new extinguisher should be located in a prominent position in the cabin.

6.3.4 There was no fire blanket on the vessel. It is RECOMMENDED (type A2 recommendation) that a fire blanket is installed and located within easy reach of the cooker.

## 6.4 LIFEJACKETS

6.4.1 None found on REGAL COMMODORE 272. A full set of lifejackets should be on board before the vessel puts to sea.

## 6.5 MAN OVERBOARD RECOVERY EQUIPMENT

6.5.1 None found on REGAL COMMODORE 272. At least one horse-shoe buoy should be carried on board and stowed where it can easily be reached in an emergency.

6.5.2 There was no anchor ball found on board. This is required by COLREGS. It is RECOMMENDED (type A2 recommendation) that one is procured and stowed ready for use.

6.5.3 There were no flares found on board. It is RECOMMENDED (type A2 recommendation) that an inshore flare pack is kept on board.

# 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 cruised.

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

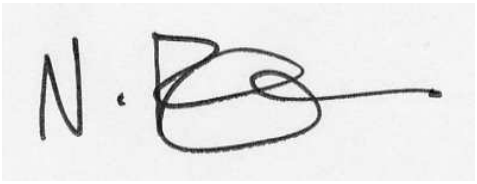
Type C Structural, mechanical or other defects NOT requiring immediate attention but are to be dealt with within a specified time period.

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.

# Appendix 2. Abbreviations Used in This Report

| | |
|---|---|
| ac | Alternating current |
| COLREGS | International Regulations for Preventing Collisions at Sea 1972 |
| dc | Direct current |
| GRP | Glass Reinforced Plastic |
| HP | Horse Power |
| UV | Ultra Violet |



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

Marine Surveyor,
Fieldhouse Yacht Surveys.