

## **D. Hull, Deck and Structure**

### **1. Keel.**

xxxxxxx xxxxxx was slung in the Yard Hoist April 9<sup>th</sup> 2018 at Newark Marina.

Keel was observed 9<sup>th</sup> April when vessel lifted out by yard hoist. Anti-fouling in reasonable condition and well bonded. Hammer tested and there is solid ringing hammer tone throughout. Used inspection mirror to see underneath the keel and it was clean with no signs of abrasion or any bits missing.

Hammer tested hull both sides of keel – no voids detected or observed any de-lamination issues.

### **2. Hull below Waterline.**

#### **Hull**

Hull was observed 9<sup>th</sup> April whilst in the hoist. Hammer tested port and starboard undersides including chine areas. No de-lamination observed. 5 chines planing hull. Anti-fouling paint well adhered generally. Although on the starboard bow upper chine area some mild flaking had occurred. Tramex readings were in 20-45 range but as there was mild drizzle and the vessel had been power washed by the yard in the cradle whilst I started the survey; I would surmise the hull couldn't dry properly in 13.5 degrees air temperature thus ensuring some moisture spots were still on the surface and could affect the output of the Tramex readings.

No noticeable crazing or blistering was observed on the hull. On port side there was some mild paint cracking and peeling and around port midships area, too. Overall, it was mostly intact.

### **3. Topsides above Waterline including Rubbing Strake etc.**

Generally, the white gelcoat is in an acceptable cosmetic order for the Motor Cruisers age. This was observed from the wooden pontoon from the starboard side only. A more thorough inspection needs to be carried out.

The rubbing strake was of alloy construction with rubber insertion and in fair condition for vessels age. Appears to be well bonded. Some missing chunks of rubber but commensurate with vessels age and previous use in berthing and entering locks. No gelcoat blistering observed on starboard side from pontoon. This was confirmed when the vessel was in the hoist. Some mild abrasion to gelcoat noted on certain areas.

Tramex moisture meter readings taken at 0.6 metre gaps and were in range 25-45 on both port and starboard side.

Advisory Note: Lower transom rubbing strake needs gluing down on starboard forward edge.

There is a GRP constructed bathing platform complete with stainless steel ladder and extension ladder. When the platform took my body weight; it didn't move or warp. See Fig.1.



Fig 1 – Integrated Transom bathing platform.

#### 4. Deck Moulding.

The deck moulding horizontal surfaces appears in decent condition no visible sign of water ingress was observed. Light hammer testing was conducted to check for de-lamination and de-bonding. No sponginess was detected. The Tramex Moisture reader was used to take readings using the GRP setting on the meter. Near the windlass on the starboard aft area reading were in the range of 80 plus and set off the audible alarm on the Tramex device. When the anchor locker was checked it was observed a GRP repair had been done previously and after light hammer tapping revealed there may be some de-lamination probably after water ingress had occurred via the windlass deck chain hole and penetrated the core. Fig.2

Moisture Meter Readings	Range
Tramex Skipper Plus, Comparative (GRP) 0-100, where Zero is "dry" and 100 considered "high moisture".	
Deck Moulding -bows, port and starboard lateral areas	20-32



Fig 2. xxxxxx xxxxxxxx windlass with high moisture readings indicated by blue circular outline.

#### **5. Coach Roof.**

This was covered with a gelcoat finish on top of GRP woven rovings and cored construction. If there is generally any crazing observed there is always potential that water can permeate this type of construction over time. Overall, it was observed to be in good condition. Light hammer tapping revealed no apparent signs of delamination or voids.

Tramex reading in the range of 20 to 30. Sampling pattern was 30 cms apart done randomly. Railings and stanchions are in good condition. No missing screws in base of stanchions. Observable cracking at base of stanchions in gelcoat. See photos and continue to observe for water ingress.

#### **6. Cockpit/Flybridge.**

The Cockpit/Flybridge construction is the same as the coach roof. Hammer tested sample areas no de-lamination observed. Flybridge decking is in clean condition with no pools of water being observed at the rear of flybridge area. No unsightly rust marks. Cockpit seating is in excellent condition made of white leather with 2 blue striped rings design. Despite being exposed occasionally to the elements.

Stainless steel Radar arch is capable of collapsing downwards to a level below the flybridge window. However, its capability was not confirmed. The Broker tells me it does pivot.

This means that in the lowered position the vessel may get under some bridges in certain waterways.

Advisory Note: The owner must check this properly to avoid potential damage during bridge transits.

Air draft is explained in earlier notes.

Storage bins under 2 seat and 1 seat configuration. Additionally, there is 1 and 1 seat port and starboard behind the helm seats. A Sliding safety glass moulded accommodation access door (6mm thick) is fitted and alarmed complete with three lever locking security mechanism.

## **7. Hull/Deck Join.**

The deck moulding overlaps the hull and is secured with bonding paste and through bolts. Looked around all join areas and found no de-bonding areas as far as one could see from the deck level. The port and starboard stanchion rails run along this hull deck join perimeter. No screws were observed to be missing, standing proud, rusted, or cracked. Hammer tested; no signs of delamination. As in Section 6 gelcoat paint is star pattern shaped cracking at base of many stanchions port and starboard.

## **8. Bulkheads and Structural Stiffening including Internal Mouldings.**

The hull is internally reinforced with longitudinal bearers on the centreline and about 0.5 m out from either side. There is an extensive internal moulding which runs from the anchor locker just forward of main cabin to the main engine space. Internal bulkheads and furniture units are bonded to this. There is a single half height bulkhead across the forward end of the engine compartment. Aft of this are boxed in sections along the chines which support the fuel tanks fitted on port and starboard side plus bearers to support the weight of the two Volvo TMA D 41A diesel engine mounts.

No obvious areas of GRP de-bonding were found when random hammer tests conducted.

## **E. Steering and Skin Fittings, etc.**

### **1. Rudder and Steering.**

Rudder not tested as vessel was in water initially. The river trial will cater for this check.

Steering is controlled by wheel at the inner helm port side position and from the remote flybridge starboard positions. The slave arrangement can be controlled from the flybridge. A hydraulic system and single ram connects the wheel to a pivot bar which acts on both steering tillers. This was observed from the aft cabin area and the emergency tiller position is noted to be used here if main steering malfunctions. The rudder mounts were clean and well-greased.

Tested both steel rudders with hammer test and magnet. Good ringing tone on port rudder. Starboard rudder was making a tinny sound at base of that rudder. Used my magnifying glass to observe if more surface cracks were evident but could not detect any.

Note: Check this when vessel out of water again.

Lifted port rudder and no movement in the rudder stock. Very firm.

Lifted starboard rudder and detected the merest of movements in the stock position.

Note: Continue to observe.

### **2. Cathodic Protection.**

2 zinc anodes on port and starboard Trim tabs – 90% solid condition.

2 underside hull anodes are fitted.

Port side looks to be aluminium type – 50% degraded (Note: don't know why its fitted neither did the yard foreman when I asked);

Starboard side anode 98% condition and made of zinc.

Note: Check with current owner and ask why the port underside located anode is “aluminium”.

Please review the galvanic series data that is contained on the instructive website <http://www.corrosionsource.com>

**B Recommendation: Fit a Galvanic Isolator unit to craft. Around £500. This will considerably reduce galvanic action on metal undersides and provide piece of mind.**

### **3. Skin Fittings and other through Hull Apertures.**

No skin fittings or valves were dismantled as part of this survey, but the following routine tests were carried out internally:

- a) Examination conducted from inside and outside the boat.
- b) All valves open and closed to their full extent where possible.
- c) Any fixing bolts hammer tested where accessible.
- d) Bodies of metal valves or seacocks tested with a hammer inside the boat.
- e) Fittings aggressively tested inside the boat for security of the hull.
- f) Hose clips inspected, and hoses aggressively tested for secure bonding.
  - Engine intake cooling valves were checked; operated smoothly.
  - Head intake and discharge valves tested and operated smoothly.
  - Base of valves were hammer tested at point enter hull – inside and outside.
  - Physical force applied to valve and fittings.

All valves listed above were opened, operated and physically tested to check for secure hull fastness. All Hose Clips on the valves were checked for excessive rust, play and degradation. The Hose Clips were all in excellent and good condition. Inlet and Outlet Valves locking nuts were hammer tested internally with no concerns revealed. Secured to hull. No visible cracks.

Port Forward Heads Jabsco Sea Toilet Valve – 25 mm bronze skin fitting – DZR valve operated smoothly when tested; hose and clips satisfactory.

Starboard Aft Heads Jabsco Sea Toilet Valve – 25 mm bronze skin fitting – DZR valve operated smoothly when tested; hose and clips satisfactory.

A thorough check was made with vessel out the water on April 9<sup>th</sup>.

## **F. On Deck.**

### **1. Main Companionway and other Accesses to Accommodation.**

There is a glazed, square escape hatch over the 2 single beds berth in the forward cabin with attached vent. This access port hinges smoothly, and the seals are in good condition. It was opened, and hinges visibly checked.

There is a solid GRP square escape hatch over the double berth in the aft cabin. This access port hinges smoothly, and the seals are in good condition. It was opened, and hinges visibly checked.

Main companionway is accessed from transom deck via secure glass sliding door. The ladder was of solid wood construction with 4 steps. Immediately turn to right and 3 more steps take you into the aft cabin. A wooden table is stored behind the companionway steps with securing bolts to the inside cabin deck. No degradation was found on the cherry wood surfaces. In good condition for vessels age.

4 inspection covers with carpeted inserts and aluminium surrounds are located on the main cabin deck area. These lead to the engine room spaces. All operated as expected and fit securely via use of the lifting rings.

Signs of water ingress was located on the starboard side aft window where it meets the brace. Fig 4



Fig 4 - Signs of previous water ingress

## **2. Ports Windows etc.**

Main windows in the main accommodation wheelhouse are in good order and constructed of safety glass between rubber seals. All are well bonded. Did not budge when physically tested individually. No sign of any current, internal leaks (although evidence of previous leaks can be observed). There is sign of green moss growth in many of the runner window guides. These need to be cleaned out to maintain protection.

Main accommodation windows have no sign of crazing.

Flybridge - Central and starboard window wipers were tested on shore power. Satisfactory.

Inside cabin helm – Port and Central window wipers were tested on shore power. Satisfactory.

Portholes in the primary and secondary cabin worked easily, and guides were clean. No crazing was observed on the glass on all the portholes.