
Survey report

Patrol vessel "LEOPARDESS"

Survey to ascertain the condition of the patrol vessel "LEOPARDESS"



Our reference: 2016.04.0508.53/PvO/JT
Date: 18 April 2016

Subject : Patrol vessel "LEOPARDESS"

Owners : **States of Guernsey**

Report prepared for : States of Guernsey / Department of Fisheries
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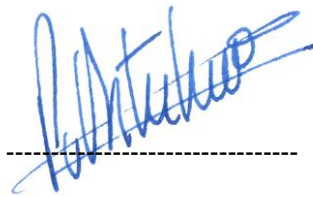
Instructed by : Mr M. Phillips
Client's reference : -

On behalf of : Owner
Instructed on : 1 April 2016

In order to : Ascertain the condition of vessel

Date of survey : 6 April 2016
Place of survey : St Sampson Harbour, Guernsey

Prepared by : BMT Surveys Risk & Quality (London) Ltd.
Date, place : 18 April 2016, London
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1. Introduction

As per request of the States Of Guernsey in co-ordination with BMT Nigel Gee, we have inspected the vessel on 6 April, while she was on the hard stand at St Sampson Harbour at Guernsey.

The conditions during the inspection were favourable. The vessel was taken out of the water a few hours prior to the inspection. The underwater hull was high pressure cleaned.

On board systems were not operational.

2. Vessel's particulars

The patrol vessel "LEOPARDESS" was built in 1998 by Damen Shipyards in Gorinchem, the Netherlands, yard no. 5635.

The vessel is of an all-aluminium welded construction. The main engines are Volvo Penta type TAMD122P-A, each driving a fixed pitch propeller, connected to a ZF reversible reduction gear.

The vessel has an accommodation which is on silent mounts on the main deck, comprising a bridge with control stand and entrance to the living quarters with a limited galley and four bunks in the forward part.

Additional to the vessel is a fast rib, which was not part of our investigation and is therefore left out of any remarks in this report.

3. Outside hull

As mentioned, the hull is of an all-aluminium and welded construction.

The full outside hull is painted and the paint was found in good to very good condition except for some locations specified hereunder. No structural damages were found to the hull, above and under water.

Above water, protection rubbing profiles are installed which are fitted in retaining channels in a certain pattern along both sides of the hull. These rubbing profiles are secured with stainless steels bolts and nuts which are all painted.

At several locations the bolts were found with corrosion emanating through the paint. The rubbing profiles were in a used condition but without seriously damaged locations.

The condition of the underwater hull was good to very good without visible structural damage. At some locations there was minor damage to the underwater paint, solely at locations where the paint was scraped off, without any damage to the hull construction. The lower end of both skegs under the aft propeller shaft bearings were found locally without paint. No structural damage.

Both propellers were found with limited fouling on the blades. The blades were found undamaged. Rope cutters are fitted on both propellers and were found in a proper operational and undamaged condition.

Both rudder blades showed some paint detachment, mainly in locations immediately aft of the

propeller and which are indicative of cavitation.

All anodes on the hull were found in an operational condition, still with sufficient remaining material for use for at least another 6 months.

4. Main deck

The main deck is fully coated, whereby in general, the coating condition is considered good.

However, at several locations, corrosion was seen developing underneath the paint. It was clearly visible that this is partly under a constant maintenance regime, whereby the localised corrosion is attacked and a proper preservation schedule is applied.

This does not count for the outer edge of the main deck, which is part of the retaining channel of the rubbing profiles. The upper side of the edge was found with corrosion underneath the paint, almost all around the vessel.

At the forecastle, the top of the pipe which leads the electric cabling for the forward floodlight, is seriously corroded at the top.

The construction on the forecastle, which is actually a railing work with a pocket for the safety ring and fenders, some extensive localised corrosion was found on several profiles.

The winch immediately aft of the accommodation on the main deck was found in a good condition. The brake pad was found slightly corroded. The bands were still with sufficient remaining brake pad lining. This winch is used for winching in the rib.

5. Accommodation

Accommodation outside

The accommodation is also of an all-aluminium and welded construction, provided with several windows around and is positioned on silent mounts. The lower edge around the accommodation is fitted with a rubber profile, which is situated between the accommodation and the main deck.

At several locations, corrosion was found in way of this rubber profile.

All windows appeared to be in a good condition, without damage.

At starboard side, the porthole just forward of the bridge showed some minor corrosion along the edges.

On the slightly sloping deck in front of the wheelhouse an escape hatch is located, which acts as the emergency escape from the accommodation. The hatch was in operable condition, with all fixtures moveable.

Topside of accommodation.

The topside of the accommodation (the monkey island) is provided with a christmas tree, comprising the majority of navigation lights and antennas.

The emergency battery box and the radar are located in front of the christmas tree.

The condition of the paint on the monkey island was found good, with some localised corrosion.

The christmas tree was found shaking when slightly forced to move in a horizontal direction. It was clear, and also later confirmed by one of the crew members, that the support of this christmas tree had been altered some time ago, but for reasons unknown. The securing was previously by way of with steel wires, whereas currently the securing is by means of two aluminium pipes.

The christmas tree can be lowered into a support.

Accommodation inside

The accommodation inside was found in a well maintained and clean condition.

The electric distribution panel at the portside, close to the aft entrance of the accommodation, was found in an all operational condition, although a bit outdated.

Equipment on the bridge was all found in working condition, whereby part of the equipment was still original and part was of a more recent date.

Inside the cabinets, this was reflected by the observance that various equipment and cabling had been added afterwards, whereby it was obvious that various cabling had not been secured as it would have been during new building. The general condition of the bridge is good.

Forward of the bridge, accessible by a stairway downwards, is the accommodation, where four bunks are provided and a limited galley. All in a proper condition.

Inspection of the internals below the floor revealed that some salt water had accumulated over time and left a concentration of salt crystals in several pockets against internals.

It was obvious that in the past the internals were partly painted. From received documents we noted that this had been done in 2010. We found that the paint had become detached over most of the surface to which it was applied.

6. Engine room

The engine room comprises a forward storage room, the main engine room where the main engines, gearboxes and exhaust systems and pumps are situated, and the aft steering gear room.

The forward engine room storage space was found in a clean and good condition. We observed that piping was used of various material – aluminium, stainless steel and copper; nevertheless, all well protected by clamps with plastic insulators.

However, at some locations we found that aluminium and stainless steel piping was connected to each other by flanges, where at some locations uninsulated bolt connections were used.

We were told that part of the piping on board had already been replaced by stainless steel (the original piping was aluminium).

The main engines are Volvo Penta type TAMD122P-A, each driving a fixed bronze propeller through a reversible reduction gear. Reportedly these engines had been overhauled some four years ago, but the reduction gears were not. We observed that in order to overhaul the

reduction gears, they need to be dismantled and taken out, but in order to do so the main engines will need to be taken out as well. This is possible via a hatch to the main deck, immediately above the main engines. In the engine room we found various piping having meanwhile been renewed from aluminium to stainless steel. Where visible, we inspected the aluminium piping and found some small leakages. This concerned bilge piping, and the leakages were obviously a result of salt water attack.

The protective coating layer in the bilge of the engine room was found loose at several locations.

Reportedly maintenance to the main engine and other equipment in the engine room is carried out at regular intervals and no operational problems were mentioned.

The steering gear system was found in a proper condition, well greased and well supported. No operational problems were reported.

7. Recommendations

In order to refit/recondition this vessel to enable her to be ready for use for at least another 10 years, we would advise the following to be carried out:

- All items on the outside which can be dismantled are to be dismantled.
- The connection between the accommodation and equipment to the main hull to be disconnected and the accommodation to be lifted from the vessel.
- Silent mountings and rubber sealing between the accommodation and the main deck to be renewed.
- Surfaces in way of corrosion to be blasted / sanded and properly conserved according to the original paint schedule of the vessel.
- The rubbing profiles on the hull to be dismantled. The hull to be blasted / sanded at the corroded areas and afterwards to be properly conserved according to the original paint schedule.
- Propellers to be dismantled, shafts and bearings to be taken out and fully serviced. Propellers to be cleaned and to be refitted afterwards, including the propeller shaft. Depending on condition of bearings, these are to be renewed.
- Christmas tree on monkey island to be dismantled. The same corrosive preventive actions to be performed and refitting of the christmas tree with additional or separate securing in order to prevent vibration of the christmas tree.
- Piping in the engine room to be carefully checked and where possible all aluminium piping to be replaced, as had been done previously by means of stainless steel piping.
- Engines to be fully overhauled, including the reduction gearboxes. It should be well considered that spare parts for these engines are not immediately available and it is expected that this might become a problem in the future. Considering this, renewal of the main engines should be considered as an alternative.
- Steering gear to be checked for clearances, to be dismantled and to be refitted afterwards.
- After the majority of the equipment has been taken out, the bilges in the hull of the vessel to be properly treated, which means the old paintwork to be removed and the new painting system to be properly applied.
- Tanks to be cleaned.

- Windows to be taken out and to be either overhauled or renewed, including the emergency escape hatch.
- All navigational equipment and the bridge to be updated to the latest standards.

8. Modifications

We learned that it is considered that the vessel may also be used by other authorities or other services. In this respect the layout of especially the bridge and the accommodation might be reconsidered when performing the intended overhaul.

Enclosures: a full set of digital pictures which has been separately sent.