

On 09082020 the tug combination reached the destination and **YUVAL** was moored alongside the 'Ponton de Secours' in the Commercial Harbour.

1. Damage Description and Survey Findings

6.1 Stern Gear

YUVAL was equipped with twin propeller stern gear, both propellers are 5-blade Class "S" ISO 484 Standard made of Nibral alloy.

The propeller shafts had a 75 mm diameter and were made of A4 grade non-magnetic stainless steel. Each one had an intermediate strut bearing and a stern strut bearing.

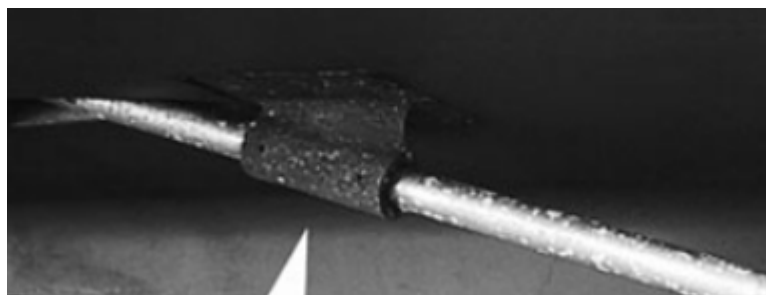


Figure 3 Intermediate Strut

The intermediate strut bearings were of the I-type whilst the main were of the V-type. The latter are equipped with a grounding skeg.

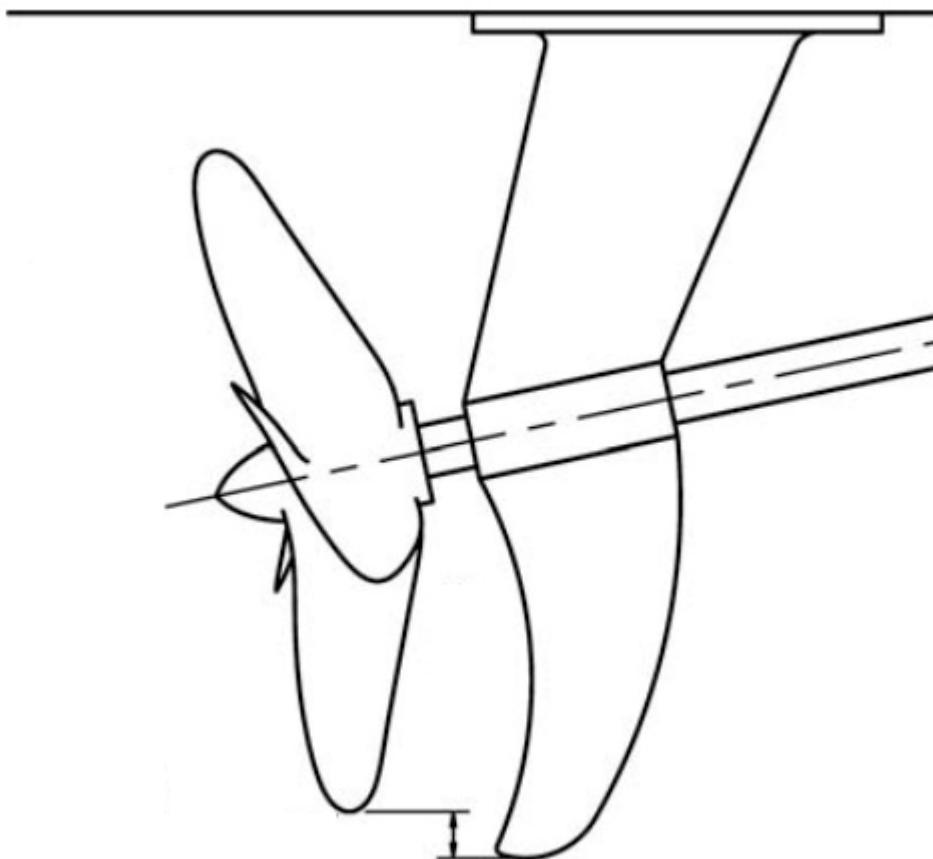


Figure 4 Grounding Skeg

All struts were of the correct length and were equipped with cutlass bearings. There was an unsupported length of 82 cm of shaft between both struts.

Both inboard shaft seals were of the ceramic plate & rubber type and were replaced in 2017. This was stated with invoices.

6.1.1 Port Side

No zinc anode was present where it should have been fixed to the shaft.

A slight bending of the shaft between both struts was measured to be 0.5 cm.

A distance of 2 mm in the vertical plane was measured between the shaft and the inner cutlass bearing of the stern strut.

A misalignment was found to exist between both struts due to bending of the longest support of the aft strut (strut grounding skeg not shown).

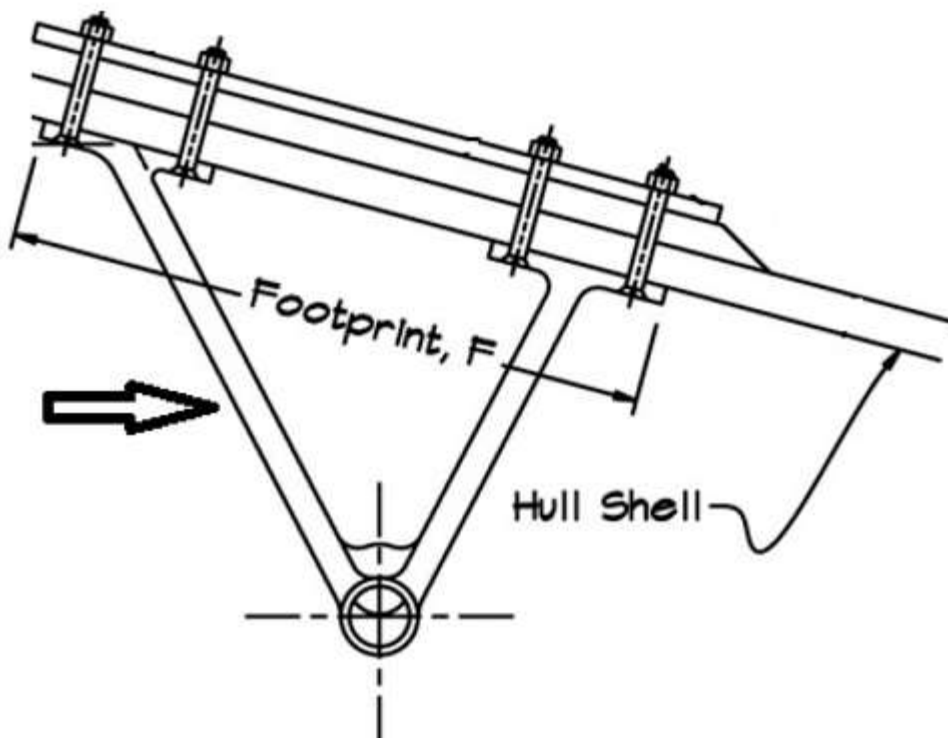


Figure 5 Misalignment

We were unable to get access to the inner side of the hull shell, opposite the outer footprint. Therefore, we cannot say that the aft strut port side is free from defects. As a result, factual information about the condition of the aft strut port side inside mounting is excluded from this survey report.

The 5-blade Class "S" ISO 484 Standard Nibral alloy propeller was in very good condition, free of damage and securely attached to the propeller shaft. There was no play in the pivot bearings between the bronze boss and the blades.

The inboard shaft seal was of the ceramic plate & rubber type. It was in good working order, with no evidence of perishing or cracking of the plasticised rubber hose. The seal was secured by a total of two stainless steel hose clips at each end. These were in good condition and free of significant corrosion. The seal was water lubricated.

6.1.2 Starboard Side

A zinc anode of correct dimensions was present where it should have been fixed to the shaft.

No misalignment or play of the shaft between both struts was measured.

The 5-blade Class "S" ISO 484 Standard Nibral alloy propeller was found to be in very good condition, free of damage and securely attached to the propeller shaft. There was no play in the pivot bearings between the bronze boss and the blades.

The inboard shaft seal was of the ceramic plate & rubber type. It was in good working order, with no evidence of perishing or cracking of the plasticised rubber hose. The seal was secured by a total of two stainless steel hose clips at each end. These were in good condition and free of significant corrosion. The seal was water lubricated.

6.2 Rudders

The rudders were of the semi-balanced type. They showed no sign of external damage and are securely mounted in their respective bearings. Both rudders were protected by one anode, mounted at the bottom and shaped as to generate minimal flow resistance. Both anodes were 10 % wasted.

6.3 Hull Exterior

General Appearance above waterline

We sighted the hull from a distance fore and aft and visually inspected all round. Her lines were symmetrical, fair and true, with no signs of distortion or flat areas.

General Appearance below waterline

The black ablative type antifouling paint below the waterline was worn and in need of a new application. There was almost no build-up of previous coats, giving a smooth hull surface. Inspection of the hull surface showed that the hull below the waterline had been treated with a number of coats of epoxy resin.

We were informed by the Owner that the hull below the waterline had been grit blasted, followed by two coats of hull zinc primer followed by an application of six coats of epoxy paint coat before the antifouling paint had been applied.

All this was professionally done at the yard in the Owner's homeport at the last lifting.

Invoices of the aforementioned yard work were provided and shown to us by the Owner.

This antifouling coating was found to be well applied and bonded well to the underlying epoxy paint, with no evidence of peeling, cracking or flaking.

The entire hull was visually inspected, except the surfaces where the keel contacted the ground supports and behind the 10 lateral supports.

Therefore, we cannot say that the hull parts we could not inspect were free from defects. As a result, factual information about the condition of these hull parts is excluded from this survey report.