

COPY.

Lloyd's Register of Shipping.



Port of M A L T A

6th March, 1937.

This is to Certify that

Lewis J. Calcaterra,

the undersigned Surveyor to this Society did at the request of the Admiralty carry out a survey of the Machinery and Boilers of the R.F.A. "RELIANT".

The propelling machinery consists of one H.P. and One L.P. turbine fitted with single reduction gear to one screw shaft.

The H.P. and L.P. turbines were opened up, rotor lifted for examination and with the exception of slight soft grease, easily removed, on the L.P. blades of the rotor and casing, they were found satisfactory. The blades show no sign of wear.

The H.P. casing was found to have leaked at the forward end due to faulty horizontal jointing, and the surface has been smoothed down as necessary.

The wear down at each end of the rotors were measured, compared with the original readings on board, and found as stated in the attached sheet.

The H.P. rotor shaft was also found slightly worn in way of packing space max. .007" and has been smoothed down as necessary.

The minimum clearance between the rotor blades and diaphragm with shaft hard up against the ahead face before alterations to thrust adjustment was H.P. .150", L.P. .257".

The flexible couplings and bearings, thrust block and bearings

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(Michell type), tunnel shaft journals and top halves of tunnel blocks have been examined and are satisfactory.

The shafts, shaft bearings and the teeth of the reduction gear have been examined and found satisfactory. The teeth have also been tried with the Makers' gauges and these were found to fit properly.

In conformity with a request from the Engineering Department, H.M. Dockyard, and concurrence by cablegram from this Society, the auxiliary machinery which had been reported defective and refitted have been examined, the others were seen whilst working and are in good condition. The condenser has been tested under a head of water. The underwater fittings have been examined and refitted as necessary. The electrical equipment is satisfactory.

Wear down of rotor shaft, (present readings).

H.P. Ford. '024" Aft '026"

L.P. Ford. '026" Aft '020"

Turbine thrust clearances.

H.P. Ford. '292")
Aft '271") '021" as found.

Ford. '278")
Aft '258") '020" as left. Note '015" liner removed
from aft to forward.

L.P. Ford. '287")
Aft '265") '022" as found.

Ford. '289")
Aft '265") '024" as left.

Main thrust clearance.

'070" as found.

'049" as left.

Bearing surface on the teeth of pinions and main wheel.

Ahead 90%

Astern 60%

Wear down of main wheel shaft, (present readings).

Ford. '055"

Aft '050"

Wear down of pinion shafts, (present readings)

H.P.	Ford.	*023"
	Centre	*023"
	Aft	*025"
L.P.	Ford.	*023"
	Centre	*023"
	Aft	*025"

BOILERS.

There are four boilers of the cylindrical single ended return tube type, each having four corrugated furnaces with separate combustion chambers. The boilers are oil fired and fitted with Howden's forced draught system.

All external fastenings of the boilers have been examined and found satisfactory.

The man hole doors are in good condition and well fitting.

The safety valves and all other boiler mountings have been opened and refitted as necessary.

The boilers have been examined internally and externally and found satisfactory. The defects to the shell, combustion chambers and furnaces, reported in 1934, have not increased and are not active. In accordance with previous instructions from the Admiralty, a number of combustion chamber stays which were found worn $\frac{1}{8}$ " below the original diameter have now been renewed.

No.2 boiler 18 stays

No.3 boiler 15 stays

No.4 boiler 33 stays

On completion of survey and repairs the boilers were satisfactorily tested by water pressure to 285 lbs per sq.inch. Deflection meters were fitted in the furnaces and combustion chambers and maximum deflections varied from $1/16$ " compression to $1/16$ " expansion, and on release of pressure left no permanent set. The boilers were subsequently tested under steam pressure to 190 lbs per sq.inch and safety valves adjusted to that pressure.