

# REPORT ON OIL ENGINE MACHINERY

No. 10,330

10 MAR 1930

Received at London Office

Date of writing Report

19

When handed in at Local Office

8<sup>th</sup> Mar 1930 Port of Belfast

No. in Survey held at Reg. Book.

Belfast

Date, First Survey 6<sup>th</sup> August 1928 Last Survey 3<sup>rd</sup> March 1930

Number of Visits 100

37059 on the <sup>Single</sup> Twin <sup>Triple</sup> Screw vessel <sup>Quadruple</sup>

Ulster Prince

Tons <sup>Gross</sup> <sub>Net</sub>

Built at Belfast By whom built Harland & Wolff Ltd. Yard No. 697 When built 1930

Engines made at Belfast By whom made Harland & Wolff Ltd. Engine No. 697 When made 1930

Donkey Boilers made at Lincoln By whom made Babcock & Wilcox Ltd. Boiler No. 74576 When made 1929

Brake Horse Power Owners Belfast S.S. Co. Ltd. Port belonging to Belfast

Nom. Horse Power as per Rule 1193 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes

Trade for which vessel is intended Ocean-going

**OIL ENGINES, &c.**—Type of Engines Harland & Wolff B.M. (Solid Injection) 2 or 4 stroke cycle. <sup>Single or double acting</sup> Single

Maximum pressure in cylinders 500 lb/sq. in. Diameter of cylinders 630 mm. Length of stroke 980 mm. No. of cylinders 20 No. of cranks 20

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 876 mm. Is there a bearing between each crank Yes

Revolutions per minute 170 Flywheel dia. 1694 mm. Weight 1150 Kilop. Means of ignition Compression Kind of fuel used Diesel oil

Crank Shaft, dia. of journals as per Rule approved as fitted 410 mm. Crank pin dia. 410 mm. Crank Webs Mid. length breadth 650 mm. Thickness parallel to axis 256 mm. Mid. length thickness 256 mm. Thickness around eye-hole 180 mm.

Flywheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule approved as fitted 11 1/2" Thrust Shaft, diameter at collars as per Rule approved as fitted 12"

Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule approved as fitted 13" Is the <sup>tube</sup> <sub>screw</sub> shaft fitted with a continuous liner No.

Bronze Liners, thickness in way of bushes as per Rule as fitted Thickness between bushes as per Rule as fitted Is the after end of the liner made watertight in the

propeller boss If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft Yes If so, state type Rederwall Length of Bearing in Stern Bush next to and supporting propeller 4' 8"

Propeller, dia. 12' 0" Pitch 12' 7" No. of blades 3 Material Mang. Sn. whether Moveable Yes Total Developed Surface each 36 sq. feet

Method of reversing Engines direct acting Engines Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication forced Thickness of cylinder liners 4.6 mm. Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Yes If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine 5 funnel

Cooling Water Pumps, No. Two Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Bilge Pumps worked from the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line No. and Size Three. Bilge 60 ton/hr. Ballast 100 ton/hr. Emergency Bilge 60 ton/hr. How driven Electric Motors

Ballast Pumps, No. and size One 100 ton/hr. Lubricating Oil Pumps, including Spare Pump, No. and size Two 90 ton/hr.

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces Two—2 1/2' forward Two—3' aft Two—3' in Auxiliary Engine room

In Holds, &c. No. 1. Hold One—3' No. 2. Hold Two—3' Deck over tunnel Two—3' Tunnel Hold Two—3' Tunnel Recess One—3'

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size Three—Main Engine Room Two—4' Aux. Engine Room One—4'

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Yes

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Overboard Discharges above or below the deep water line above

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

What pipes pass through the bunkers How are they protected

What pipes pass through the deep tanks Have they been tested as per Rule

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes Bridge in passage above worked from Engine room

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Main Air Compressors, No. No. of stages Diameters Stroke Driven by

Auxiliary Air Compressors, No. Two No. of stages Two Diameters 240. 210 Stroke 160 mm. Driven by Electric Motors

Small Auxiliary Air Compressors, No. One No. of stages Two Diameters 106. 34, Stroke 80 mm. Driven by Steam

Scavenging Air Pumps, No. Diameter Stroke Driven by

Auxiliary Engines crank shafts, diameter as per Rule 132 mm. as fitted 140 mm.

**AIR RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes

Can the internal surfaces of the receivers be examined Yes What means are provided for cleaning their inner surfaces open ends or manholes

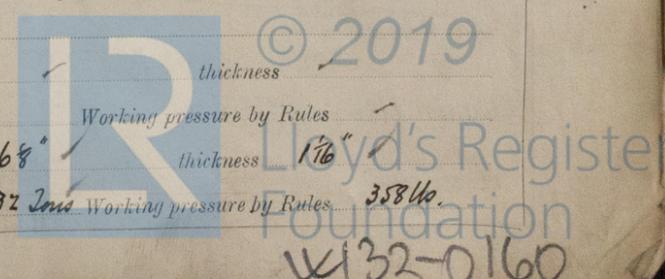
Is there a drain arrangement fitted at the lowest part of each receiver Yes

High Pressure Air Receivers, No. Cubic capacity of each Internal diameter thickness Working pressure by Rules

Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules

Starting Air Receivers, No. Two Total cubic capacity 2140 ft. Internal diameter 76 1/2" thickness 1 7/8" Working pressure by Rules 358 lb.

Seamless, lap welded or riveted longitudinal joint v.d.b. straps Material Steel Range of tensile strength 28-32 tons Working pressure by Rules 358 lb.



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IS A DONKEY BOILER FITTED? *Yes Harland Waste Heat* If so, is a report now forwarded? *Yes*

PLANS. Are approved plans forwarded herewith for Shafting *1.5.28* Receivers *6.6.28* Separate Tanks *16.6.28*  
(If not, state date of approval)  
Donkey Boilers General Pumping Arrangements *18.10.28* Oil Fuel Burning Arrangements *18.10.28*

SPARE GEAR *In excess of rule-requirements see separate list*

The foregoing is a correct description,  
For HARLAND AND WOLFF, LIMITED;

*Harland and Wolff*

Manufacturer.

Dates of Survey while building  
During progress of work in shops - *1928* Aug 6-10 Oct 19 Nov 26-29 Dec 22 *1929* Jan 3-31 Feb 8-9-16-18-25 Mar 7-8-12-13-15-18-19-22-25-28 Apr 6-9  
During erection on board vessel - June 3-5-7-10-13-14-17-27-28 July 29-23 Aug 1-5-6-12-14-15-16-19-23-26-29-30 Sept 4-10 Oct 8-9-14-17-18  
Total No. of visits *25* Nov 21-27-28-29 Dec 5-10-13-17-21-27 Mar 3-100

Dates of Examination of principal parts - Cylinders *16.4.29* to *15.5.29* covers *15.5.29* Pistons *12.3.29* Rods *25.4.29* Connecting rods *29.4.29*

Crank shaft *16.4.29* *29.4.29* Flywheel shaft  Thrust shaft *2.5.29* Intermediate shafts *9.4.29* *15.4.29* Tube shaft

Screw shaft *28.3.29* Propeller *25.2.29* Stern tube *28.3.29* Engine seatings *25.4.29* Engines holding down bolts *8.10.29*

Completion of fitting sea connections *25.4.29* Completion of pumping arrangements *28.11.29* Engines tried under working conditions *3<sup>rd</sup> Mar. 1930*

Crank shaft, Material *S.M. Ingot Steel* Identification Mark *N<sup>o</sup> 43 r 46 R.L.A.* Flywheel shaft, Material  Identification Mark *1039.111.1181.1194.1194*

Thrust shaft, Material *S.M. Ingot Steel* Identification Mark *N<sup>o</sup> 874 r 918 R.L.A.* Intermediate shafts, Material *S.M. Ingot Steel* Identification Marks *918.1254.1010.1047.1069*

Tube shaft, Material  Identification Mark  Screw shaft, Material *S.M. Ingot Steel* Identification Mark *918.874.3317 R.L.A.*

Is the flash point of the oil to be used over 150° F. *Yes*

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with *Yes*

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *No* If so, have the requirements of the Rules been complied with

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *ULSTER MONARCH*

General Remarks (State quality of workmanship, opinions as to class, &c.)

*The machinery of this vessel has been constructed under special survey. The workmanship and materials are sound and good. The main engines and auxiliaries have been tried out under working conditions at moored and sea trials with satisfactory results. In my opinion, the vessel is now eligible for notation in the Society's Register Book - L.M.C. 3.30. O.G. waste heat boiler pressure 80 lbs. Fitted for oil fuel 3.30. F.P. above 150° F. Electric light.*

*The main engines indicated 5900 I.H.P. at 150 R.P.M. with a mean indicated pressure 6.11 Kgf. cm<sup>2</sup>.*

*It is submitted that this vessel is eligible for THE RECORD. + d.m.b. 3.30.*

*oil engines 45 csa  
Koc. 24 3/16 - 38 9/16  
NAP 1193. 28.80 lb. O.G.*

*R.A. 18/3/30*

The amount of Entry Fee ... £ 6 : - : When applied for, *asm*  
Special ... £ 129 : 16.6 : *5<sup>th</sup> Mar 1930*  
Donkey Boiler Fee ... £ 8 : 8 : When received, *26.3.30*  
AIR RESERVOIRS  
Travelling Expenses (if any) £ : : *ellb*

*R. Lee Annes*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE, 18 MAR 1930

Assigned

*+ d.m.b. 3.30 oil sup.  
O.G. 28.80 lbs*



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CERTIFICATE WRITTEN