

## REPORT ON OIL ENGINE MACHINERY.

No. 9973

23 MAY 1928

Received at London Office

Date of writing Report

10

When handed in at Local Office

22<sup>nd</sup> May 1928 Port of BelfastNo. in Survey held at  
Reg. Book.

Belfast

Date, First Survey 27<sup>th</sup> July 1927Last Survey 10<sup>th</sup> May 1928

Number of Visits 68

41515 on the <sup>Single</sup> ~~Twin~~ <sup>Triple</sup> ~~Quadruple~~ Screw vessel

KING ARTHUR

Tons { Gross 5227  
Net 3139

Built at Belfast

By whom built Harland &amp; Wolff Ltd.

Yard No. 763 When built 1928

Engines made at Belfast

By whom made Harland &amp; Wolff Ltd.

Engine No. 763 When made 1928

Donkey Boilers made at Annan

By whom made Buchanan &amp; Co. Annan Ltd.

Boiler No. 17781 When made 1928

Brake Horse Power 1900

Owners King Line Ltd. (Road, Thomson &amp; Co. Ltd.) Port belonging to London

Nom. Horse Power as per Rule 489

Is Refrigerating Machinery fitted for cargo purposes No.

Is Electric Light fitted Yes

Trade for which vessel is intended

Ocean-going

OIL ENGINES, &amp;c.—Type of Engines Harland &amp; Wolff - B.W. Type diesel 2 or 4 stroke cycle 4 Single or double acting single

Maximum pressure in cylinders 500 lb. Diameter of cylinders 740 mm. Length of stroke 1500 mm. No. of cylinders 6 No. of cranks 6

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1000 mm. Is there a bearing between each crank Yes

Revolutions per minute 90 Flywheel dia. 2500 mm. Weight 16000 kilos. Means of ignition Compression Kind of fuel used diesel oil

Crank Shaft, dia. of journals as per Rule 470 mm. Crank pin dia. 485 mm. Crank Webs Mid. length breadth 790 mm. Thickness parallel to axis 310 mm.  
as fitted 485 mm. bore 115 mm. Mid. length thickness 310 mm. Thickness around eye-hole 210 mm.

Flywheel Shaft, diameter as per Rule as fitted Thrust Shaft, diameter at collars as per Rule 13.81" as fitted 14.21"

Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 14.475" as fitted 15" Is the tube screw shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 7/16" as fitted 13/16" Thickness between bushes as per rule .5625" as fitted .56" Is the after end of the liner made watertight in the propeller boss Yes

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

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 Yes

If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft No

Length of Bearing in Stern Bush next to and supporting propeller 60"

Propeller, dia. 15'-9" Pitch 15'-6" No. of blades four Material Man. Br. whether Moveable No Total Developed Surface 82 sq. feet

Method of reversing Engines servo motor Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication forced

Thickness of cylinder liners 53 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 6 funnel

Cooling Water Pumps, No. Two 100 tons/hr 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 one bilge 80 tons/hr Two ballast 100 tons/hr

How driven electric motor

Ballast Pumps, No. and size Two 8" x 8" 100 tons/hr Lubricating Oil Pumps, including Spare Pump, No. and size Two twin 50 tons/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 3" — In Hold 4" — 2 1/2"

Holds, &amp;c. No. 1 Hold 2-3", No. 2 Hold 2-3", DEEPTANK 2-2 1/2", No. 3 Hold 2-3", AFT COFFERDAM 1-2 1/2", No. 4 Hold 2-3", TUNNEL WELL 1-3"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size BILGE PUMP 2-5" BALLAST PUMPS 2-6"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes

Are the Bilge Suctions in the Machinery Spaces 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 both

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 both

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

How are they protected

Have they been tested as per Rule Yes

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 worked from main deck

In 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. One No. of stages 3 Diameters 70-675-150 Stroke 460 mm. Driven by main Engines

Auxiliary Air Compressors, No. Three No. of stages 3 Diameters 370-280-82 Stroke 220 mm. Driven by Ann. diesels

Two Auxiliary Air Compressors, No. One No. of stages 2 Diameters 106-34 Stroke 80 mm. Driven by Steam

Engining Air Pumps, No. — Diameter — Stroke — Driven by —

Auxiliary Engines crank shafts, diameter as per Rule as fitted 180 mm

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

Are the internal surfaces of the receivers be examined Yes

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

Pressure Air Receivers, No. Six Cubic capacity of each 388 litres 3/100 Internal diameter 295 mm. thickness 15 mm.

Are they lap welded or riveted longitudinal joint seamless Material Steel Range of tensile strength 26-30 tons Working pressure by Rules 13.05 lb.

Low Pressure Air Receivers, No. 2 Total cubic capacity 1076 ft. Internal diameter 71 3/8" thickness 13 1/2"

Are they lap welded or riveted longitudinal joint riveted Material Steel Range of tensile strength 28-32 tons Working pressure by Rules 360 lb.



IS A DONKEY BOILER FITTED? Yes

If so, is a report now forwarded? Yes

PLANS. Are approved plans forwarded herewith for Shafting 11. 12. 26  
(If not, state date of approval)

Receivers 30. 11. 26

Separate Tanks 21. 1. 27

Donkey Boilers ✓

General Pumping Arrangements 23. 12. 27

Oil Fuel Burning Arrangements 23. 12. 27

SPARE GEAR In excess of the rule requirements - see accompanying list

The foregoing is a correct description  
for HARLAND AND WOLFF LIMITED,

Manufacturer.

Eschbeck

Dates of Survey while building  
During progress of work in shops - 1927 July 27 Aug 12-17-19-23-31 Oct. 5-6-18-20-21-28 Nov. 1-2-8-21-24-28 Dec. 2-5-8-9-12-13-14-15  
During erection on board vessel - 20-22 Jan 3-6-9-11-12-20-23-24-25-26-27-31 Feb 1-2-6-7-8-9-10-13-14-15-17-20-21-22-27-28-29  
Total No. of visits Mar 6-14-15-16-20-22-26 Apr 19-30 May 10 = 68

Dates of Examination of principal parts—Cylinders 26-1-28 to 2-2-28 Covers 8-12-27 to 19-12-27 Pistons 7-2-28 Rods 13-12-27 Connecting rods 6-2-28

Crank shaft 7-2-28 Flywheel shaft AND Thrust shaft 7-2-28 Intermediate shafts 16-3-28 Tube shaft ✓

Screw shaft 7-2-28 Propeller 25-1-28 Stern tube 20-3-28 Engine seatings 20-3-28 Engines holding down bolts 30-4-28

Completion of fitting sea connections 23-3-28 Completion of pumping arrangements 10-5-28 Engines tried under working conditions 10-5-28

Crank shaft, Material S.M. INGOT STEEL Identification Mark 1748 R.L.A. Flywheel shaft, Material ✓ Identification Mark ✓

Thrust shaft, Material S.M. INGOT STEEL Identification Mark 230 R.L.A. Intermediate shafts, Material S.M. INGOT STEEL Identification Marks 200-1871-200-24

Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material S.M. INGOT STEEL Identification Mark 1927 R.L.A.

Is the flash point of the oil to be used over 150° F. YES If so, state name of vessel KING EDGAR &c

Is this machinery duplicate of a previous case YES

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

The machinery of this vessel has been constructed under special survey. The materials & workmanship are sound and good. The main and auxiliary engines were tried out with satisfactory results. The fuel oil lines were tested by hydraulic pressure. The air relief valves were adjusted to lift at their respective pressures. The donkey boiler safety valves were adjusted under steam. In my opinion the vessel is now eligible for entry in the Society's Register. Book 1-1 M.C. 5-28 C.L. Fitted for oil fuel 5-28, F.P. above 150°F donkey boiler pressure 100 lb.

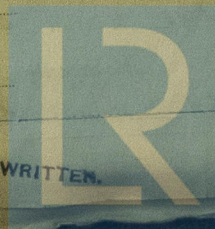
The amount of Entry Fee ... £ 5 : 0 :  
Special ... £ 98 : 7 :  
Donkey Boiler Fee ... £ 8 : 8 :  
Travelling Expenses (if any) £ : :  
When applied for, 22<sup>nd</sup> May 1928  
When received, 29. 5. 28  
FRI. 25 MAY 1928

Committee's Minute

Assigned

R. Lee Ames

Engineer Surveyor to Lloyd's Register of Shipping



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