

REPORT ON OIL ENGINE MACHINERY.

No. 9973
23 MAY 1928

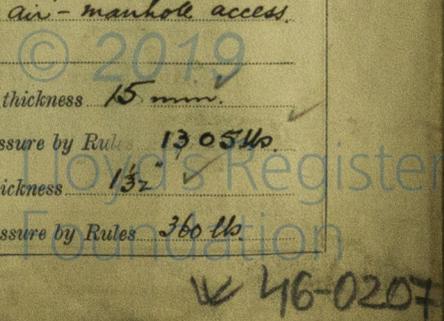
Received at London Office

Date of writing Report 19... When handed in at Local Office 22nd May 1928 Port of Belfast
No. in Survey held at Belfast Date, First Survey 27th July 1927 Last Survey 10th May 1928
Reg. Book. Number of Visits 68

41515 on the ^{Single} ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel KING ARTHUR Tons { Gross 5227 Net 3139
Built at Belfast By whom built Harland & Wolff Ltd. Yard No. 763 When built 1928
Engines made at Belfast By whom made Harland & Wolff Ltd. Engine No. 763 When made 1928
Donkey Boilers made at Annan By whom made Cochran & Co. Annan Ltd. Boiler No. 17781 When made 1928
Brake Horse Power 1900 Owners King Line Ltd. (Dodd, Thomson & 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, &c.—Type of Engines Harland & 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. broad 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"
as fitted Thrust Shaft Intermediate Shafts, diameter as per Rule 13.16" as fitted 13.5"
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 7/16" Thickness between bushes as per rule .5625" as fitted 13/16"
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 87 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 freed 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" - Cofferdam Suctions 4-2 1/2"
Holds, &c. No. 1 Hold 2-3", No. 2 Hold 2-3 1/2", DEEPTANK 2-2 1/2", No. 3 Hold 2-3", AFT COFFERDAM 1-3 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
Do all pipes pass through the bunkers Yes How are they protected Yes
Do all pipes pass through the deep tanks Yes 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
Are wood vessels, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes
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 Aux. diesels
Small 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 What means are provided for cleaning their inner surfaces Blast air - open ends
Is there a drain arrangement fitted at the lowest part of each receiver Yes Slaking air - manhole access
Pressure Air Receivers, No. Six Cubic capacity of each 388 litres 3/100 dia. 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 13.0540
Small Air Receivers, No. 2 Total cubic capacity 1076 ft. Internal diameter 7 1/2" thickness 13 1/2"
Are they lap welded or riveted longitudinal joint welded 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 Receivers 30.11.26 Separate Tanks 21.1.27
 (If not, state date of approval)
 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.
W. Estebbeck

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 Max 6-14-15-16-20-22-26 April 19-30 May 10 = 68

Dates of Examination of principal parts - Cylinders 26-1-28 to 2-2-28 Covers 8-12-27 & 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 sealings 20-3-28 Engines holding down bolts 30-4-28
 Completion of fitting sea connections 27-3-28 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

Is this machinery duplicate of a previous case Yes If so, state name of vessel KING EDGAR

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 hied out with satisfactory results. The fuel oil lines were tested by hydraulic pressure. The air relief valves were adjusted 15 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 - L.M.C. 5-28 C.L. (fitted for oil fuel 5-28, F.P. above 150°F) donkey boiler pressure 100 lb.

Certificate (if required) to be sent to
 (The Surveyors are requested not to write on or below the space for Committee's Minutes.)

The amount of Entry Fee ... £ 5 : 0 :
 Special ... £ 98 : 7 :
 Donkey Boiler Fee ... £ 8 : 8 :
 Travelling Expenses (if any) £ : :
 When applied for, 22nd May 1928
 When received, 29.5.28
 FRI. 25 MAY 1928

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

Committee's Minute
 Assigned
L.M.C. 5-28 C.L.
Oil Engines

