

REPORT ON OIL ENGINE MACHINERY.

No. 9886

Received at London Office 23 DEC 1927

Date of writing Report 19 When handed in at Local Office 23rd Dec 1927 Port of Belfast

No. in Survey held at Belfast Date, First Survey 25th Jan 1927 Last Survey 19th Dec 1927

Reg. Book. 41471 on the ^{Single} ~~Twin~~ ^{Triple} Screw vessels KING EDWIN Tons ^{Gross} _{Net}

Master Built at Belfast By whom built Harland & Wolff Ltd. Yard No. 758 When built 1927

Engines made at Belfast By whom made Harland & Wolff Ltd. Engine No. 758 When made 1927

Donkey Boilers made at Annan By whom made Cochran & Co. (Annan) Ltd. Boiler No. 10422 When made 1927

Brake Horse Power 1900 Owners King Line Ltd (Ward, 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.

OIL ENGINES, &c.—Type of Engines Harland & Wolff - B.M. type Diesel 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 500 lbs No. of cylinders Six No. of cranks Six Diameter of cylinders 740 mm

Length of stroke 1500 mm Revolutions per minute 90 Means of ignition Compression Kind of fuel used Diesel oil

Is there a bearing between each crank Yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 1004 mm

Distance between centres of main bearings 1450 mm Is a flywheel fitted Yes Diameter of crank shaft journals as per Rule 470 mm as fitted 485 mm bal'd 115 mm

Diameter of crank pins 485 mm Breadth of crank webs as per Rule 625.1 mm as fitted 790 mm Thickness of ditto as per Rule 263.2 mm as fitted 310 mm

Diameter of flywheel shaft as per Rule as fitted Diameter of tunnel shaft as per Rule 13.16" as fitted 13 1/2" Diameter of thrust shaft as per Rule 13.81" as fitted 14 1/2"

Diameter of screw shaft as per Rule 14.475" as fitted 15" Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes

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 joints burned

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 If without liners, is the shaft arranged to run in oil

Type of outer gland fitted to stern tube Length of stern bush 5'-0" Diameter of propeller 15'-9"

Pitch of propeller 12'-6" No. of blades 4 state whether moveable No. Total surface 82 square feet

Method of reversing Revo. motor Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Thickness of cylinder liners 3 mm

Are the cylinders fitted with safety valves Yes Means of lubrication forced 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

led up funnel No. of cooling water pumps 2 Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes No. of bilge pumps fitted to the main engines Diameter of ditto Stroke

Can one be overhauled while the other is at work No. of auxiliary pumps connected to the main bilge lines 3 How driven motor

Sizes of pumps Bilge 80 gpm 2 Ballast 100 gpm No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room Two 3" aff. Coffdam 1-2 1/2" No. 2 Two 3" Tunnel well one 3" and in holds, etc. No. 1 Two 3" No. 2 Two 3 1/2" No. 3 Two 3 1/2" No. 4 Two 3" No. of ballast pumps Two How driven motor Sizes of pumps 8" x 8" 100 gpm/hr

Is the ballast pump fitted with a direct suction from the engine room bilges Yes State size Two - 6" Is a separate auxiliary pump suction fitted in Engine Room and size Two - 5" Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine Room always accessible Yes

Are the sluices on Engine Room bulkheads always accessible Are all connections with the sea direct on the skin of the ship Yes

Are they valves or cocks Both Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates Yes

Are the discharge pipes 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 all pipes, cocks, valves and pumps in connection with the machinery accessible at all times Yes Are the bilge suction pipes, cocks and valves arranged so as to prevent any communication between the sea and the bilges Yes Is the screw shaft tunnel watertight Yes Is it fitted with a watertight door Yes

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

No. of main air compressors One No. of stages 3 Diameters 750-675-150 Stroke 460 mm Driven by Main Engines

No. of auxiliary air compressors Three No. of stages 3 Diameters 320-280-82 Stroke 320 mm Driven by Aux. Diesels

No. of small auxiliary air compressors One No. of stages 2 Diameters 106-24 Stroke 80 mm Driven by Steam

No. of scavenging air pumps Diameter Stroke Driven by

Diameter of auxiliary Diesel Engine crank shafts as per Rule as fitted 180 mm. Are the air compressors and their coolers made so as to be easy of access Yes

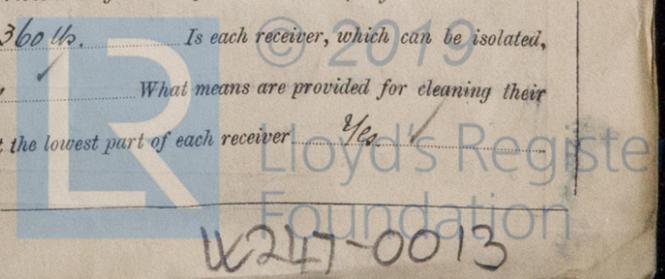
AIR RECEIVERS:—No. of high pressure air receivers Six Internal diameter 295 mm Cubic capacity of each 788 litres 7/10 litres

material Steel Seamless, lap welded or riveted longitudinal joint Seamless Range of tensile strength 26-30 tons

thickness 30 mm working pressure by Rules 2912 lbs/sq. in. No. of starting air receivers Two Internal diameter 72 3/8"

Total cubic capacity 1076 cu ft Material Steel Seamless, lap welded or riveted longitudinal joint in 1 long joint

Range of tensile strength 28-32 tons thickness 1 3/2" Working pressure by rules 360 lbs/sq. in. 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 Manhole access Is there a drain arrangement fitted at the lowest part of each receiver Yes



IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS					
" " COVERS	8.4.27 to 21.4.27	500 lbs	1000 lbs	R.L.A.	
" " JACKETS	12.9.27 to 19.9.27		50 lbs	R.L.A.	
" PISTON WATER PASSAGES					
MAIN COMPRESSORS—1st STAGE	31.8.27	75 lbs	150 lbs	R.L.A.	
" 2nd "	8.9.27	250 lbs	500 lbs	R.L.A.	
" 3rd "	19.9.27 to 27.9.27	1000 lbs	2000 lbs	R.L.A.	
AIR RECEIVERS—STARTING	6.9.27 + 28.9.27	356 lbs	585 lbs	R.L.A.	
" INJECTION	14.10.27 to 1.11.27	1000 lbs	2000 lbs	R.L.A.	
AIR PIPES	9.11.27 to 17.11.27	356 lbs	712 lbs	R.L.A.	
FUEL PIPES					
FUEL PUMPS	19.9.27 to 14.10.27	1000 lbs	2000 lbs	R.L.A.	
SILENCER	1.11.27		5 lbs	R.L.A.	
" WATER JACKET					
SEPARATE FUEL TANKS	7.10.27		8 lbs	R.L.A.	

PLANS. Are approved plans forwarded herewith for shafting *11th Dec. 1926* Receivers *30th Nov. 1926* Separate Tanks *21st Jan 1927*
(If not, state date of approval)

SPARE GEAR

In excess of Lloyd's Register requirements - see attached list.

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

F. Stebbek Manufacturer.

Dates of Survey while building
 During progress of work in shops: *1927 Jan 25-27 Feb 1. Mar 3-17 22 Apr 8-11-13-14-20-21-22-28 May 4-9-10-23-24*
 During erection on board vessel: *July 21-23-27-30 Aug 1-2-3-4-5-9-11-12-15-17-23-24-26-31 Sept 1-5-6-7-8-12-13-14-15-19-20-23-26-27-28-29 Oct 3-7-10-11-12-13-14-17-18-20-24-25-26-28-31 Nov 1-14-15-19-20-23-26-27-28-29 Dec 2-8-16-19*
 Total No. of visits: *9-17-22-28 Dec 2-8-16-19 = 47*

Dates of Examination of principal parts—Cylinders *5 19.9.27* Covers *21.4.27* Pistons *15.8.27* Rods *15.8.27* Connecting rods *19.8.27*
 Crank shaft *1.8.27* Thrust shaft *14.10.27* Tunnel shafts *7.9.27* Screw shaft *13.9.27* Propeller *26.9.27* Stern tube *5.9.27* Engine seatings *20.9.27*
 Engines holding down bolts *31.10.27* Completion of pumping arrangements *19.12.27* Engines tried under working conditions *16.12.27*
 Completion of fitting sea connections *29.9.27* Stern tube *29.9.27* Screw shaft and propeller *29.9.27*

Material of crank shaft *S.M. Ingot Steel* Identification Mark on Do. *1407 R.L.A.* Material of thrust shaft *S.M. Ingot Steel* Identification Mark on Do. *1586 R.L.A.*
 Material of tunnel shafts *S.M. Ingot Steel* Identification Marks on Do. *1637-1657-716H3* Material of screw shafts *S.M. Ingot Steel* Identification Marks on Do. *1657 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 tried out at a mooring trial 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 notation in the Society's Register Book + L.M.C. 12.27 C.L. FITTED FOR OIL FUEL 11.27 F.P. ABOVE 150° F.

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

The amount of Entry Fee ... £ 5 : -
 Special ... £ 98 : 7
 AIR RESERVOIRS Donkey Boiler Fee ... £ 8 : 8
 Travelling Expenses (if any) £ : :
 When applied for, *23rd Dec 27*
 When received, *14.1.28*

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

Committee's Minute **FRI. 30 DEC 1927**

Assigned

+ L.M.C. 12.27 Oil Engines D.B. 100lb



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