

REPORT ON OIL ENGINE MACHINERY.

No. 10002

10 JUL 1928

Received at London Office

Date of writing Report 19 When handed in at Local Office 19 Port of Belfast

No. in Survey held at Belfast Date, First Survey July 27 1927 Last Survey July 5th 1928
Reg. Book. Number of Visits 67

41530 on the Single Twin Triple Quadruple Screw vessel STEEL SC. KING WILLIAM. Tons ^{Gross} 5227 _{Net} 3139

Built at Belfast By whom built Harland & Wolff Ltd. Yard No. 765 When built 1928

Engines made at Belfast By whom made Harland & Wolff Ltd. Engine No. 765 When made 1928

Donkey Boilers made at Annan By whom made Cochran & Co. Annan Ltd. Boiler No. 10429 When made 1928

Brake Horse Power 1900 Owners King Line Ltd. (Dodd, Hanson & 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.M. type diesel 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 500 lbs 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 1004 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. ^{as fitted} 485 mm. bored 115 mm. Crank pin dia. 485 mm. Crank Webs ^{Mid. length breadth} 790 mm. ^{Mid. length thickness} 310 mm. Thickness parallel to axis 310 mm. Thickness around eyehole 210 mm.

Flywheel Shaft, diameter ^{as per Rule} 13-16" ^{as fitted} 13 1/2" Intermediate Shafts, diameter ^{as per Rule} 14-17 1/2" ^{as fitted} 15" Thrust Shaft, diameter at collars ^{as per Rule} 13-8 1/2" ^{as fitted} 14 1/4"

Tube Shaft, diameter ^{as per Rule} 15" ^{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 1/4" ^{as fitted} 13 1/16" Thickness between bushes ^{as per rule} 56 1/2" ^{as fitted} 13 1/16" 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 12'6" No. of blades four Material Mang. Br. whether Moveable No Total Developed Surface 82 sq. feet

Method of reversing Engines Levo-motri Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication faced

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 1 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 motors

Ballast Pumps, No. and size Two 8'x8" 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 suction 4 1/2"

In Holds, &c. Hot Hold two 3" No. 2 Hold two 3 1/2" Deep Tank two 2 1/2" No. 3 Hold two 3" Aft. Cofferdam one 2 1/2" Hot Hold two 3" Trunk one 3"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size One Bilge Pump two 5" Ballast pumps two 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 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 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

What pipes pass through the bunkers Yes How are they protected Yes

What 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

If a wood vessel, 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 three Diameters 740-675-150 Stroke 460 mm. Driven by main engines

Auxiliary Air Compressors, No. Three No. of stages three Diameters 320-280-82 Stroke 220 mm. Driven by aux. diesels

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} 180 mm. ^{as fitted} 180 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 Blow air - open ends Starling Air - manhole access

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

High Pressure Air Receivers, No. Six Cubic capacity of each 38 litres 38 litres Internal diameter 295 mm. thickness 15 mm.

Seamless, lap welded or riveted longitudinal joint Seamless Material Steel Range of tensile strength 26-30 tons Working pressure by Rules 1305 lbs

Starting Air Receivers, No. Two Total cubic capacity 1076 Internal diameter 72 3/8" thickness 1 1/2"

Seamless, lap welded or riveted longitudinal joint Seamless Material Steel Range of tensile strength 28-32 tons Working pressure by Rules 360 lbs

003275

003281

00495

IS A DONKEY BOILER FITTED?

Yes

If so, is a report now forwarded?

Yes

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

11.12.26

Receivers

30.11.26

Separate Tanks

21.1.27

Donkey Boilers

General Pumping Arrangements

23.12.27

Oil Fuel Burning Arrangements

18.12.27

SPARE GEAR In excess of rule requirements - see attached list.

The foregoing is a correct description,

or HARLAND AND WOLFF, LIMITED,

Leobbeck

Manufacturer.

Dates of Survey while building
During progress of work in shops - 1927 July 27 Aug 17 19 23 31 Nov 1 8 16 21 24 28 Dec 6 20 1928 Jan 5 6 Feb 1 3 6 7 8 17 20 22 24 27 28
During erection on board vessel - Mar 2 9 19 20 23 26 Apr 3 4 16 19 23 25 26 27 May 1 2 4 5 7 8 9 11 14 15 17 18 21 23 24 28 29 31 June 7 18 21
Total No. of visits 67

Dates of Examination of principal parts - Cylinders 16 Apr 5 May 19 Covers 6 16 28 Feb 19 28 Pistons 20 2 28 Rods 20 2 28 Connecting rods 28 5 28
Crank shaft 26 4 28 Flywheel shaft and Thrust shaft 7 2 28 Intermediate shafts 14 5 28 Tube shaft
Screw shaft 16 4 28 Propeller 3 4 28 Stern tube 1 5 28 Engine seatings 24 5 28 Engines holding down bolts 22 6 28
Completion of fitting sea connections 17 5 28 Completion of pumping arrangements 3 7 28 Engines tried under working conditions 3 7 28
Crank shaft, Material S.M. INGOT STEEL Identification Mark 1877 R.L.A. Flywheel shaft, Material Identification Mark 2053 2067
Thrust shaft, Material S.M. INGOT STEEL Identification Mark 2036 R.L.A. Intermediate shafts, Material S.M. INGOT STEEL Identification Marks 2059 1966 R.L.
Tube shaft, Material Identification Mark Screw shaft, Material S.M. INGOT STEEL Identification Mark 1985 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" Ye.

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 in accordance with the rules. 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. 7.28 C.L. Fitted for oil fuel 7.28 B.P. above 150°F. Donkey boiler pressure 100 lbs.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 7.28 C.L.

OIL ENGINES 45 C.I. 5A. 489 N.H.P.
6cy. 29 8/16 - 59 1/16 D.B. 100 lbs.
R.A.
11/7/28.

The amount of Entry Fee ... £ 5 : - : When applied for,
Special ... £ 98 : 7 : 9-7-1928
Air Reservoir Fee ... £ 8 : 8 :
Donkey Boiler Fee ... £ 8 : 8 :
Travelling Expenses (if any) £ : :
When received, 25-7-28

Committee's Minute

Assigned

+ L.M.C. 7.28 C.L.
Oil Engines D.B. 100 lbs.

R. Lee Ameson.

Engineer Surveyor to Lloyd's Register of Shipping.



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