

REPORT ON OIL ENGINE MACHINERY.

W1133-0184

No. 11.351

-3 SEP 1934

Received at London Office

Date of writing Report 19 When handed in at Local Office 31/8/34 Port of Belfast
 No. in Survey held at Belfast Date, First Survey 10th August 1933 Last Survey 28th August 1934
 Reg. Book. 87481 on the Single Twin Triple Quadruple Screw vessel WAIWERA Number of Visits 171

Built at Belfast By whom built Harland + Wolff Ltd. Yard No. 922 When built 1934
 Engines made at Belfast By whom made Harland + Wolff Ltd. Engine No. 922 When made 1934
 Donkey Boilers made at Belfast By whom made Harland + Wolff Ltd. Boiler No. 922 When made 1934
 Brake Horse Power _____ Owners Shaw, Savill + Albion Co. Ltd. Port belonging to Lanhampton
 Nom. Horse Power as per Rule 1631 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
 Trade for which vessel is intended Ocean-going 29 1/2 59 1/2

L ENGINES, &c. Type of Engines Harland + Wolff - 3 cyl. 2 stroke Heavy Oil AIRLESS INJECTION PRESSURE INDUCANCE
 Maximum pressure in cylinders 650 lbs Diameter of cylinders 740 mm. Length of stroke 1500 mm. No. of cylinders 20 No. of cranks 20
 Position of bearings, adjacent to the Crank, measured from inner edge to inner edge 1062 mm. Is there a bearing between each crank Yes
 Revolutions per minute max 112 Flywheel dia. 2482.8 mm Weight 2650 Kgrs. Means of ignition compression Kind of fuel used diesel oil
 Crank Shaft, dia. of journals as per Rule 579 mm Crank pin dia. 530 bore 190 mm Crank Webs Mid. length breadth 888 mm Thickness parallel to axis 326 mm
 Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule 14.23" Thrust Shaft, diameter at collars as per Rule 14.95"
 Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule 15.64" Is the shaft fitted with a continuous liner Yes
 Bronze Liners, thickness in way of bushes as per Rule 25" Thickness between bushes as per rule 19 3/8" 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
 Propeller, dia. 17'0" Pitch 16'-6" No. of blades three Material mang. Br. whether Moveable Yes Total Developed Surface ca. 70 sq. feet
 Method of reversing Engines Air Cylinders Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication
 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
 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 to forward
 Cooling Water Pumps, No. three each 240 Tons/hr Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes, duplex
 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 two at 110 Tons/hr One at 200 Tons/hr
 How driven Electric Motors
 Bilge Pumps, No. and size one 200 Tons/hr Lubricating Oil Pumps, including Spare Pump, No. and size three - 100 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 of 3" two of 2" (Flywheel wells) one of 2" (C.R. Cdam aft) two of 2" (C.R. Cdam fwd) in Pump Room
 Holds, &c. No. 1- two of 3" Cdam - one of 2" No. 2- two of 3" No. 3- two of 3" No. 5- two of 3" Cdam - two of 2 1/2" No. 6- two of 3" Tunnel Well one of 3"
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size one 6" two 5"
 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 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
 How are they protected _____
 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 worked from Bridge deck
 On wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes

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 and cleaned Yes Is a drain fitted at the lowest part of each receiver Yes
 Pressure Air Receivers, No. _____ Cubic capacity of each _____ Internal diameter _____ thickness _____
 Material _____ Range of tensile strength _____ Working pressure _____
 Starting Air Receivers, No. 3 two of 450 one of 900 Total cubic capacity 2250 Internal diameter 5'-10 5/16" 6'-4 1/8" thickness 1"-1 1/8"
 Material T.R. D.B.S. Range of tensile strength 28/32 Working pressure _____

Air Compressors, No. _____ No. of stages _____ Diameters _____ Stroke _____ Driven by _____
 Auxiliary Air Compressors, No. two No. of stages 2 Diameters 350-400 mm Stroke 260 mm. Driven by Electric Motors
 All Auxiliary Air Compressors, No. one No. of stages 2 Diameters 54-180 mm Stroke 115 mm. Driven by Steam
 Suctioning Air Pumps, No. _____ Diameter _____ Stroke _____ Driven by _____
 Auxiliary Engines crank shafts, diameter as per Rule 201.5 mm. See 9th Rpt. No. _____ Position _____
5-6-5-3-1 ring of main motor room

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IS A DONKEY BOILER FITTED? *Two made steel* If so, is a report now forwarded? *Yes*
 Is the donkey boiler intended to be used for domestic purposes only *No.*
 PLANS. Are approved plans forwarded herewith for Shafting *6th - 8th July 1933* Receivers *16. 8. 33* Separate Tanks *22. 8. 33 16. 4. 34*
 (If not, state date of approval)
 Donkey Boilers *16. 8. 33* General Pumping Arrangements *28. 12. 33* Oil Fuel Burning Arrangements *22. 3. 33*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*
 State the principal additional spare gear supplied *See attached list.*

The foregoing is a correct description.
 FOR HARLAND AND WOLFF, LIMITED,
A. Marshall Manufacturer.
 Assistant Secretary.

Dates of Survey while building
 During progress of work in shops -- *Aug. 10, 22, 24, 29, 30, 31, Sept. 4, 6, 7, 12, 14, 15, 18, 19, 25, 26, 27, 29, Oct. 2, 4, 5, 6, 10, 11, 12, 14, 19, 24, 25, 27, 30, Nov. 2, 6, 7, 9, 10, 11, 13, 16, 17, 20, 21, 22, 24, 29, 30, Dec. 1, 4, 5, 6, 7, 8, 11, 12, 14, 15, 18, 19, 1934, Jan. 5, 8, 10, 11, 12, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 29, 30, Feb. 1, 2, 5, 6, 7, 9, 12, 13, 14, 15, 16, 19, 20, 21, 23, 26, 27, 28, 29, Mar. 2, 5, 6, 7, 9, 12, 13, 14, 15, 16, 19, 20, 21, 23, 26, 27, 28, 29, Apr. 4, 5, 6, 9, 10, 16, 17, 18, 20, 23, 24, 25, 26, May 1, 2, 4, 7, 9, 10, 14, 15, 16, 21, 22, 24, 28, 29, 30, 31, June 1, 6, 13, 14, 18, 19, 21, 22, 25, 26, 28, 29, July 4, 6, 20, 23, 25, 27, 30, Aug. 1, 8, 14, 17, 20, 27, 28, 29, 30, 31, 1934 = 171*
 Total No. of visits *18. 19. 21. 22. 25. 26. 28. 29. July 4. 6. 20. 23. 25. 27. 30. Aug. 1. 8. 14. 17. 20. 27. 28. 29. 30. 31. 1934 = 171*

Dates of Examination of principal parts—Cylinders *25th Sept. 1933*
 Crank shaft *9. 1. 34* Flywheel shaft *14. 2. 34* Thrust shaft *2. 11. 33* Intermediate shafts *6. 10. 33 & 14. 3. 34* Tube shaft *4. 7. 34*
 Screw shaft *13. 3. 34* Propeller *16. 3. 34* Stern tube *16. 3. 34* Engine seatings *5. 4. 34* Engines holding down bolts *4. 7. 34*
 Completion of fitting sea connections *6. 5. 34* Completion of pumping arrangements *15. 8. 34* Engines tried under working conditions *78. 8. 34*
 Crank shaft, Material *Ingot Steel* Identification Mark *nos. 197, 198 R.L.A.* Flywheel shaft, Material *Ingot Steel* Identification Mark *805-812-814*
 Thrust shaft, Material *"* Identification Mark *819 R.L.A.* Intermediate shafts, Material *Ingot Steel* Identification Marks *816-819-829-831*
 Tube shaft, Material *"* Identification Mark *"* Screw shaft, Material *"* Identification Mark *794-800-834 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 *Yes*
 If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *Yes*
 Is this machinery duplicate of a previous case *No.* If so, state name of vessel *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery of this vessel has been constructed under special survey. The workmanship & materials are sound and good. The main and auxiliary machinery has been efficiently installed and tried out at moored & sea trials with satisfactory results. In my opinion the vessel is eligible for record in the Society's Register Book - L.M.C. 8.34 C.L. 2D.B. 100 lbs. Electric light. OIL ENGINES.

The amount of Entry Fee .. £ 6 : - : When applied for, *31. 8. 19. 34*
 Special £ 140 : 15 : 6
 Donkey Boiler Fee £ 8 : 8 : : When received, *12. 9. 19. 34*
 Air Reservoirs
 Travelling Expenses (if any) £ 12 : 12 : - : *12. 9. 19. 34*
 Committee's Minute *FRI. 14 SEP 1934*
 Assigned *+ L.M.C. 8,34 C.L.*
25B. 100lb
 R. Lee Amess
 Engineer Surveyor to Lloyd's Register of Shipping.
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