

REPORT ON OIL ENGINE MACHINERY.

No. 11342.

Received at London Office

Date of writing Report 28/9/1934 When handed in at Local Office 28/9/1934 Port of Belfast 1 OCT 4
 No. in Survey held at Belfast Date, First Survey 12 January Last Survey 9 Sept 1934
 Reg. Book. Number of Visits 110

75271 on the Single Twin Triple Quadruple Screw vessel DURHAM Tons Gross 10892.66
Net 6260.72

Built at Belfast By whom built Workman Clark (1928) Ltd Yard No. 533 When built 1934
 Engines made at Belfast By whom made Workman Clark (1928) Ltd Engine No. 533 When made 1934
 Donkey Boilers made at Belfast By whom made Workman Clark (1928) Ltd Boiler No. 533 When made 1934
 Brake Horse Power 11000 Owners Federal Steam Navigation Co Ltd Port belonging to London
 Nom. Horse Power as per Rule 2236 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
 Trade for which vessel is intended Ocean going 28 3/4 19 3/16

OIL ENGINES, &c.—Type of Engines Workman Clark Sulzer Airless Injection 4 stroke cycle 2 Single or double acting Single
 Maximum pressure in cylinders 700 lb sq in Diameter of cylinders 720 mm Length of stroke 1250 mm No. of cylinders 8 each eng. No. of cranks 8 each eng.
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 930 mm Is there a bearing between each crank Yes
 Revolutions per minute 130 Flywheel dia. 2350 mm Weight 4.2 tons Means of ignition Compression Kind of fuel used Heavy fuel oil
 Crank Shaft, dia. of journals as per Rule 490 mm Crank pin dia. 490 mm Crank Webs as per Rule 14.515" Mid. length breadth shrunk Thickness parallel to axis 305 mm
 Flywheel Shaft, diameter as fitted 490 mm Intermediate Shafts, diameter as per Rule 14.27" Thrust Shaft, diameter at collars as per Rule 490 mm
 Tube Shaft, diameter as per Rule Screw Shaft, diameter as fitted 17" Is the tube shaft fitted with a continuous liner Yes
 Bronze Liners, thickness in way of bushes as per Rule 25" Thickness between bushes as per rule 75" Is the after end of the liner made watertight in the propeller boss Yes
as fitted 32" and 32" as fitted 5"

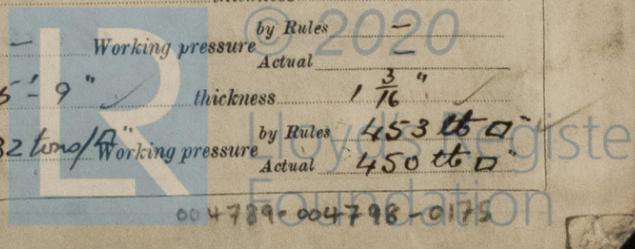
If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive —
 If two liners are fitted, is the shaft lapped or protected between the liners — Is an approved Oil Gland or other appliance fitted at the after end of the tube —
 shaft no If so, state type — Length of Bearing in Stern Bush next to and supporting propeller 5'-8"
 Propeller, dia. 16'-6" Pitch 15'-4" No. of blades 3 Material Brongze whether Moveable Yes Total Developed Surface 75 sq. feet
 Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication Forced
 Thickness of cylinder liners 45 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 —

Cooling Water Pumps, No. 3-Saltwater 3-Freshwater the sea suction provided with an efficient strainer which can be cleared within the vessel Yes
 Bilge Pumps worked from the Main Engines, No. none Diameter — Stroke — Can one be overhauled while the other is at work —
 Pumps connected to the Main Bilge Line { No. and Size 2 @ 120 tons/hr 2 @ 100 tons/hr
 How driven Electric motor
 Ballast Pumps, No. and size 2 @ 100 tons/hr Lubricating Oil Pumps, including Spare Pump, No. and size 3 @ 55 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 4 @ 3 1/2" 2 @ 2 1/2" 1 @ 2 1/2" (in aft. offertan) In Pump Room —
 In Holds, &c. no 1-2 @ 3" no 2-2 @ 3 1/2" no 3-2 @ 3 1/2" For: buff dm - 2 @ 3" Duct keel - 1 @ 3" no 4-3 @ 3" no 5-2 @ 3"
no 6-2, 2 1/2" Scufflers led to tunnel well bilge
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 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 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 Valves and Cocks
 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 Below
 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 — How are they protected —
 What pipes pass through the deep tanks — 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 Upper Deck
 If 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. — No. of stages — Diameters — Stroke — Driven by —
 Auxiliary Air Compressors, No. 2 No. of stages 2 Diameters 250 cu. ft. free air @ 450 lb each Stroke — Driven by 100 HP motor @ 350 R.P.M.
 Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 20 cu. ft. free air @ 450 lb Stroke — Driven by Steam
 Scavenging Air Pumps, No. 2 D.A. Diameter 1660 mm Stroke 750 mm Driven by Main shaft extension
 Auxiliary Engines crank shafts, diameter as per Rule 158 mm No. Three Position 2 on starboard side
as fitted 160 mm 1 on port side main air charging line

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Fusible plugs on all receivers 2 Safety valves on
 Can the internal surfaces of the receivers be examined and cleaned Yes Is a drain fitted at the lowest part of each receiver Yes
 High Pressure Air Receivers, No. — Cubic capacity of each — Internal diameter — thickness —
 Seamless, lap welded or riveted longitudinal joint — Material — Range of tensile strength — Working pressure —
 Starting Air Receivers, No. 4 Total cubic capacity 1400 cu. ft. Internal diameter 5'-9" thickness 1 3/16"
 Seamless, lap welded or riveted longitudinal joint T.R. D. Butts Material Steel Range of tensile strength 28-32 tons/sq in Working pressure —
 Actual 453 lb sq in
 Actual 450 lb sq in



IS A DONKEY BOILER FITTED? Yes 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 28/12/33 Receivers 10/1/34 Separate Tanks 14/2/34
 (If not, state date of approval)
 Donkey Boilers 16/11/33 General Pumping Arrangements 5/12/33 Oil Fuel Burning Arrangements Joddie Gravity System

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes
 State the principal additional spare gear supplied 1 propeller shaft complete and 4 bronze propeller blades.
1 stack of tubes for each size of cooler. 1 complete set of thrust pads
5 cylinder liners and 1 cylinder cover w/p. 1 piston complete with rod and
cooling water pipes. 1 piston skirt and 2 piston crowns. 5 fuel valves, 2 starting
air valves, 8 cylinder relief valves, 8 fuel cams, 4 piston cooling running pipes
and 4 stand pipes.

The foregoing is a correct description,
 pro WORKMAN CLARK (1928) LIMITED.

J. Bunningham Secretary. Manufacturer.

Dates of Survey while building	During progress of work in shops--	1934	Jan 12. 19. 24. 29	Feb 13. 16	Mar 7. 13. 15. 19. 20. 24. 25. 26. 27. 29. 30	Apr 5. 9. 10. 11. 12. 13. 16. 19. 20. 23. 24
		During erection on board vessel--	14. 15. 18. 20. 21. 25. 26. 27. 28. 29	July 3. 4. 5. 6. 17. 18. 19. 20. 21. 25. 27. 30. 31	Aug 1. 2. 3. 6. 7. 8. 15. 14. 17	
		Total No. of visits	110			

Dates of Examination of principal parts—Cylinders 15/3/34 to 30/4/34 Covers 2 to 12/5/34 Pistons 20/4/34 Rods 20/4/34 Connecting rods 20/4/34
 Crank shaft 30/4/34 Flywheel shaft and Thrust shaft 30/4/34 Intermediate shafts 4/5/34 Tube shaft —
 Screw shafts Pat 14/5/34 Star 15/5/34 Spare 13/9/34 Propellers 14/5/34 Stern tubes 10/5/34 Engine seatings 2/8/34 Engines holding down bolts 2/8/34
 Completion of fitting sea connections 21/6/34 Completion of pumping arrangements 13/9/34 Engines tried under working conditions 13/9/34
 Crank shaft, Material Steel Identification Mark J.K.W. 30/4/34 Flywheel shaft, Material Steel Identification Mark LLOYDS NO 93
 Thrust shaft, Material Steel Identification Mark J.K.W. 30/4/34 Intermediate shafts, Material Steel Identification Marks LLOYDS 4760
 Tube shaft, Material — Identification Mark — Screw shafts, Material Steel Identification Mark J.K.W. 4/5/34
 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 —
 If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with —
 Is this machinery duplicate of a previous case — If so, state name of vessel —

General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery of this vessel has been constructed under special survey.
The workmanship and materials are sound and good. The main and
auxiliary machinery has been efficiently installed and tried out at
mooed and sea trials with satisfactory results. In my opinion the
vessel is eligible for record in the Society's Register Book + LMC
9,34. CL 2DB 120 to 12" Electric light OIL ENGINES.

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

The amount of Entry Fee .. £ 6 : — : — When applied for,
 Special £ 155 : 18 : — 28th Sept. 1934.
 Donkey Boiler Fee £ 17 : 6 : — When received,
 Travelling Expenses (if any) £ 16 : 16 : — 12.10.34
 15

John Ruddle
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 12 OCT 1934
 Assigned + Lmb. 9.34 oil Eng Cl.
2 DB-120th

CERTIFICATE WRITTEN.

