Rpt. 4b

REPORT ON OIL ENGINE MACHINERY.

No. 5857.

Received at London Office 15 APR 1926

Date of writing Report 14.4. 1926 When handed in at Local Office 14th April 1926 Port of MANCHESTER.

No. in Reg. Book. Survey held at MANCHESTER Date, First Survey Octr 14th 1925 Last Survey April 12th 1926.

Number of Visits 12

on the Single ~~Twin~~ ~~Triple~~ Quadruple Screw vessel Tons Gross Net

Built at Faversham By whom built James Pollock & Sons Ld Yard No. 1194 When built

Engines made at Manchester By whom made L. Gardner & Sons Ld Engine No 26736 When made 1926

Donkey Boilers made at By whom made Boiler No. When made

Brake Horse Power 150 ✓ Owners Port belonging to

Nom. Horse Power as per Rule 43.0 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

Trade for which vessel is intended

OIL ENGINES, &c.—Type of Engines Vertical, Semi-Diesel, Reversible, Air Starting ✓ 2 or 4 stroke cycle 2 ✓ Single or double acting Single

Maximum pressure in cylinders 300 lbs ✓ Diameter of cylinders 13¼" ✓ Length of stroke 15" ✓ No. of cylinders 3 ✓ No. of cranks 3 ✓

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 19½" ✓ Is there a bearing between each crank Yes ✓

Revolutions per minute 290 ✓ Flywheel dia. 42½" ✓ Weight 2900 lbs ✓ Means of ignition Hot Bulb Kind of fuel used Heavy Oil ✓

Crank Shaft, dia. of journals as per Rule 5.62" as fitted 6.25" ✓ Crank pin dia. 6.25" ✓ Crank Webs Mid. length breadth 8.25" ✓ Mid. length thickness 3.5" ✓ shrunk Thickness parallel to axis ✓ Thickness around eyehole ✓

Flywheel Shaft, diameter as per Rule ✓ as fitted ✓ **Intermediate Shafts,** diameter as per Rule 3.765" as fitted 4.25" **Thrust Shaft,** diameter at collars as per Rule 3.95" ✓ as fitted 3.5" (N. Steel 41 tons min)

Tube Shaft, diameter as per Rule ✓ as fitted ✓ **Screw Shaft,** diameter as per Rule 4.14" as fitted 4.5"–4.75" ✓ Is the tube / screw shaft fitted with a continuous liner ✓ / No liners ✓

Bronze Liners, thickness in way of bushes as per Rule ✓ as fitted ✓ Thickness between bushes as per rule ✓ as fitted ✓ Is the after end of the liner made watertight in the propeller boss ✓ If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner ✓

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 Yes ✓ Length of Bearing in **Stern Bush** next to and supporting propeller 24" ✓

Propeller, dia. 55" Pitch 39" No. of blades 3 ✓ Material C. I. ✓ whether Moveable No ✓ Total Developed Surface 1150 ✓ sq. ~~feet~~ "

Method of reversing Engines Camshaft Adjt. ✓ Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes ✓ Means of lubrication Mech. light drip and lub. to main bearings only Thickness of cylinder liners ✓ Are the cylinders fitted with safety valves No ✓ 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. One Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Bilge Pumps worked from the **Main Engines,** No. One ✓ Diameter 2⅜" ✓ Stroke 3" ✓ Can one be overhauled while the other is at work ✓

Pumps connected to the **Main Bilge Line** No. and Size / How driven

Ballast Pumps, No. and size **Lubricating Oil Pumps,** including Spare Pump, No. and size 2" x ⅝" stroke. ✓

Are two independent means arranged for circulating water through the **Oil Cooler** **Suctions,** connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces

In Holds, &c.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes 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 ✓

Are all **Sea Connections** fitted direct on the skin of the ship Are they fitted with Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Are the Overboard Discharges above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

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

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 Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

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. One No. of stages One Diameters 6" Stroke 3" Driven by Crankshaft Extension

Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by

Small Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by

Scavenging Air Pumps, No. Diameter Stroke Driven by

Auxiliary Engines crank shafts, diameter as per Rule 2.375" as fitted 2.5" (for generator) 2.5 & 2.25" in way of flywheel (pump & aircompressor) ✓

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 3" gas plug in one end.

Is there a drain arrangement 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 by Rules ✓

Starting Air Receivers, No. 4 Nos. 122662, 122663, 122664, 122665 Total cubic capacity 7.4, 7.4, 6.4, 4.2 ft³ Internal diameter 12½" & 10" ✓ thickness ¼" ✓

Seamless, lap welded or riveted longitudinal joint Seamless (Chesterfield Co. Ld) ✓ Material M. S. ✓ Range of tensile strength 28/32 tons ✓ Working pressure by Rules 465 & 580 lbs/□"

Margin: 7-7-26. Shipping.

IS A DONKEY BOILER FITTED? If so, is a report now forwarded?

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

Donkey Boilers No General Pumping Arrangements No Oil Fuel Burning Arrangements No

SPARE GEAR

1-Propeller Shaft

The foregoing is a correct description.

L. GARDNER & SONS LIMITED.

William Gardner. *Manufacturer.*

DIRECTOR

Dates of Survey while building — During progress of work in shops: 1925. Oct 14. Nov. 9. 11. Dec. 2. 22. 1926 Jan 7. 8. 18. 29. Feb. 22. Mar. 12. Shafts.

During erection on board vessel:

Total No. of visits 12 + K

Dates of Examination of principal parts—Cylinders 7 and 8/1/26 Covers 29/1/26 Pistons 4/1/26 Rods ✓ Connecting rods 11/11/25

Crank shaft 22/12/25 Flywheel shaft ✓ Thrust shaft 22/2/26 Intermediate shafts 12/3/26 Tube shaft ✓

Screw shaft 22/12/25 Propeller 22/12/25 Stern tube Engine seatings Engines holding down bolts

Completion of fitting sea connections Completion of pumping arrangements Engines tried under working conditions

Crank shaft, Material Mild Steel Identification Mark 1034 Az Flywheel shaft, Material ✓ Identification Mark ✓

Thrust shaft, Material Nickel Steel 4% Forg mins. Identification Mark 1048 Az Intermediate shafts, Material Mild Steel Identification Marks 1068 Az

Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material Mild Steel Identification Mark 1046. 1047 A (Spare)

Is the flash point of the oil to be used over 150° F.

Is this machinery duplicate of a previous case No If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c. The above main engine of Gardners 3T9 type together with one Gardner Semi Diesel 3 T Type single Cyl. Engine No 26823, clutch coupled at one side to a Reavell 2 stage air Compressor No 18176 (stamped L.R50/100 lbs) and clutch coupled & via single reduction spur gears on other side to a Thurlow Patent Rotary Pump No 26004, have been built under special Survey and the materials tested in accordance with the Rules of this Society. The materials so far as can be seen are sound and the workmanship is good, and two other engines are also being supplied for auxiliary purposes viz: 1-3 T Engine No 36824 direct coupled to an Electromotor Emcelector 3½ K.W. 110 Volts No 46949, and a second Similar Engine No 26822 at present uncoupled. These latter engines have not been built to special survey.

The main engine and Eng. No 26824 & 26822 proved satisfactory under shop test on full load and the former manoeuvred well. Engine No 26823 remains to be examined under running conditions on board Ship. The above engines are in my opinion eligible for the notation of + L.M.C. with date when fitted on board the vessel in accordance with the requirements of this Society and subject to Engine No 26823 proving satisfactory under working conditions. The fuel service tanks examined and tested at the (Amt. charged to L. Gardner & Sons Ltd ⅝-£17-0-0. = £13-12-0) makers works and found in order.

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	£	2 : 0 :	When applied for,
Special (see above)	£	13 : 12 :	14. 4. 1926
Donkey Boiler Fee	£	✓ :	When received,
Travelling Expenses (if any)	£	✓ :	27. 5. 26

Alfred H. Shane.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned See Lon. Jt. Cttee. Rep. No 90337

Rpt. 9a.

Port of MANCHESTER. *Continuation of Report No.* *dated* *on the*

J. POLLOCK & SONS, LTD.

Vessel No. 1134.

Plans enclosed:-

Main Engine.

General Arrangement.

Machinery Arrangement.

Details of Stern Tube & Bush.

Arrangement of Clutch.

Bilge Pump.

Flywheel.

Connecting Rod.

Thrust Shaft.

Crank Shaft.

Air Receivers.

Auxiliary Engine.

Elec. Light Flywheel.

Crankshaft.

Flywheel.

Connecting Rod.

Crankshaft. (Elec. type)

General Arrangement.

Fuel Tanks.

5m.11.24.