

REPORT ON OIL ENGINE MACHINERY.

No. 6308

Date of writing Report 12th Oct^r 1927 When handed in at Local Office 13th Oct^r 1927 Port of Manchester
 No. in Survey held at Manchester Date, First Survey April 26th 1927 Last Survey 7th Oct^r 1927
 Reg. Boole, Single on the Triple Screw vessel m.v. 'Castlegate' Tons Gross 51
Quadruple Net 28
 Built at Northwich By whom built Messrs Yarwood & Sons Ltd Yard No. 372 When built
 Engines made at Manchester By whom made Messrs L. Carden & Sons Ltd Engine No. 23536 When made 1927
 Donkey Boilers made at By whom made Boiler No. When made
 Brake Horse Power 55.0 Owners Messrs The Anglo American Oil Co. Ltd. Port belonging to
 Nom. Horse Power as per Rule (15.7) 16 Is Refrigerating Machinery fitted for cargo purposes
 Trade for which vessel is intended Canal River Service. Is Electric Light fitted

OIL ENGINES, &c.—Type of Engines Vertical, Non Reversing, Hand Start^d 2 or 4 stroke cycle 4 Single or double acting Single
 Maximum pressure in cylinders 250 lb Diameter of cylinders 8" Length of stroke 9" No. of cylinders 3 No. of cranks 3
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 9" Is there a bearing between each crank Yes
 Revolutions per minute 500 Flywheel dia. 31" Weight 879 lbs Means of ignition Magneto Kind of fuel used Pure kerosene (Petrol 84%)
 Crank Shaft, dia. of journals as per Rule 3.1" Crank pin dia. 3.4" Crank Webs Mid. length breadth 5" Thickness parallel to axis Solid
as fitted 3.1" Reverse Gear Intermediate Shafts, diameter 2.12 shrunk Thickness around eyehole
 Flywheel Shaft, diameter as per Rule as fitted 3" Thrust Shaft, diameter at collars as per Rule 2.23"
as fitted as fitted 2 3/4"
 Tube Shaft, diameter as per Rule as fitted Is the { tube } shaft fitted with a continuous liner {
 Screw Shaft, diameter as per Rule as fitted
 Bronze Liners, thickness in way of bushes as per Rule Thickness between bushes as per rule Is the after end of the liner made watertight in the
as fitted as fitted 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 Length of Bearing in Stern Bush next to and supporting propeller
 Propeller, dia. Pitch No. of blades Material whether Moveable Total Developed Surface sq. feet
 Method of reversing Engines Separate Gear Is a governor or other arrangement fitted to prevent racing of the engine when de-clutched Yes Means of lubrication
Forced Thickness of cylinder liners Are the cylinders fitted with safety valves No Are the exhaust pipes and silencers water cooled or lagged with
insulating 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 on engine 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 3" Stroke 4" 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 Rotary, one on each engine
 Are two independent means arranged for circulating water through the Oil Cooler
 Pumps, No. and size:—In Machinery Spaces Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
 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. ✓ No. of stages Diameters Stroke Driven by
 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 1.64"
as fitted 1 3/4" (Running test only).

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule ✓

Can the internal surfaces of the receivers be examined ✓ What means are provided for cleaning their inner surfaces ✓
 Is there a drain arrangement fitted at the lowest part of each receiver ✓

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. ✓ Total cubic capacity ✓ Internal diameter ✓ thickness ✓ Working pressure by Rules ✓
 Seamless, lap welded or riveted longitudinal joint ✓ Material ✓ Range of tensile strength ✓ Working pressure by Rules ✓

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

PLANS. Are approved plans forwarded herewith for Shafting *Crank, reverse gear, Thrust shaft* Receivers ☒ Separate Tanks *Yes*
 (If not, state date of approval)
 Donkey Boilers General Pumping Arrangements Oil Fuel Burning Arrangements

SPARE GEAR

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 -- 1927 April 26.27 May 3.17.24 June 7.24 July 5.13 Sept 6. Oct 6.7
 During erection on board vessel --
 Total No. of visits

Dates of Examination of principal parts—Cylinders 26.27/4/27 Covers 27.4.27 Pistons 27.4.27 Rods *trunk type* Connecting rods 26.4.27Crank shaft 26.4.27 Flywheel shaft *none* Thrust shaft 24.6.27 *Reverse gear* Intermediate shafts 24.6.27 Tube shaft

Screw shaft Propeller 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 43 *AL* Flywheel shaft, Material *Reverse gear* Identification Mark ☒Thrust shaft, Material *Mild Steel* Identification Mark 45 *AL* Intermediate shafts, Material *Mild Steel* Identification Marks 10 *AL*

Tube shaft, Material Identification Mark Screw shaft, Material Identification Mark

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

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo If so, have the requirements of the Rules been complied with

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 Gardner's 3KH Type & its reverse gear 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. The above main engine together with a petrol-paraffin, 45C.S.A. auxiliary engine of Gardner's 2CCR Type, Eng. 2° 27332 (Clutch coupled on one side to a Clarke Chapman generator 2° 7374, volts 100/150, K.W. 4/3, R.P.M. 1000, & clutch coupled on the other side to a chain sprocket wheel for driving a cargo pump, clutches interlocked, one in & the other out), proved satisfactory under shop test on full load.*

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.

Amt. charged to Messrs L. Gardner & Sons $\text{£ } \frac{4}{5} (\text{£ } 17.0.0) = \text{£ } 13.12.0$

The amount of Entry Fee ... $\text{£ } 2 : 0$ When applied for, 13.10.27Special *See above* $\text{£ } 15 : 0$ Donkey Boiler Fee ... $\text{£ } 13 : 12$ Travelling Expenses (if any) $\text{£ } :$ When received, *See above* 26/11/27

Committee's Minute

Assigned

Rpt. 9a.

Port of

MANCHESTER

Continuation of Report No.

dated

on the

L. Gardner & Sons, Ltd.

Plans enclosed for

W.J. Yarwood's 372-373.

3 KM Engine.

General Arrgt.

Sectional outline.

Flywheel.

Connecting Rod.

Crankshaft.

Reversing Gear Arrgt.

2 CCR Engine.

General Arrgt.

Connecting Rod.

Flywheel.

Cylinder.

Crankshaft.

Petrol tank.

Petrol & Paraffin tank.

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



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