

Rpt. 4b. RECEIVED 30 NOV 1945

# REPORT ON OIL ENGINE MACHINERY.

No. 7076

28 NOV 1945

Received at London Office

Date of writing Report 19. 11. 45 When handed in at Local Office 19. 11. 45 Port of GLASGOW.

No. in Survey held at Reg. Book. GLASGOW Date, First Survey 6. 9. 45 Last Survey 2. 11. 45 Number of Visits 13

on the <sup>Single</sup> ~~Double~~ ~~Triple~~ ~~Quadruple~~ Screw vessel "CATO" Tons { Gross Net 442 ?

Built at GOOLE By whom built GOOLE SHIPBUILDING & REPAIRING CO. Licence No. 1006. Hard No. 442 When built 1945

Engines made at GLASGOW By whom made BRITISH POLAR ENGINES LTD. Engine No. 584 When made 1945

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

Brake Horse Power 520 ✓ Owners The Bristol Steam Nav. Co. Ltd. Port belonging to Bristol

Nom. Horse Power as per Rule 118 ✓ Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

Trade for which vessel is intended Coastal Service.

ALL ENGINES, &c. Type of Engines 2 stroke Cycle Single acting or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 782 lbs. ✓ Diameter of cylinders 250 m/m ✓ Length of stroke 420 m/m ✓ No. of cylinders 7 each No. of cranks 7 each engine.

Mean Indicated Pressure 96.7 ✓ Is there a bearing between each crank Yes.

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 366 m/m ✓

Revolutions per minute 300 ✓ Flywheel dia. 1050 m/m ✓ Weight 625 lbs. ✓ Means of ignition Compression Kind of fuel used Heavy Oil ✓

Crank Shaft, { Solid forged as per Rule 155 m/m ✓ Semi built dia. of journals as fitted 170 m/m ✓ Crank pin dia. 170 m/m ✓ Crank Webs Mid. length breadth 226 m/m ✓ Thickness parallel to axis - All built Mid. length thickness 95 m/m ✓ Thickness around eye-hole -

Flywheel Shaft, diameter as per Rule Thrust Shaft. Intermediate Shafts, diameter as per Rule Thrust Shaft, diameter at collars as per Rule 123 m/m as fitted 170 m/m ✓

Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule as fitted Is the { tube screw } shaft fitted with a continuous liner {

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 If so, state type 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 Direct Is a governor or other arrangement fitted to prevent racing of the engine when disengaged. Yes Means of lubrication

forced Thickness of cylinder liners 19.5 m/m 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. One - 120 m/m Bore x 60 m/m stroke Is the sea suction provided with an efficient strainer which can be cleared within the vessel -

Bilge Pumps worked from the Main Engines, No. 1 Diameter 120 m/m Stroke 60 m/m Can one be overhauled while the other is at work -

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

Is the cooling water led to the bilges If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements

Ballast Pumps, No. and size Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 off 2780 Galls per hour.

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 Pump Room

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

and 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

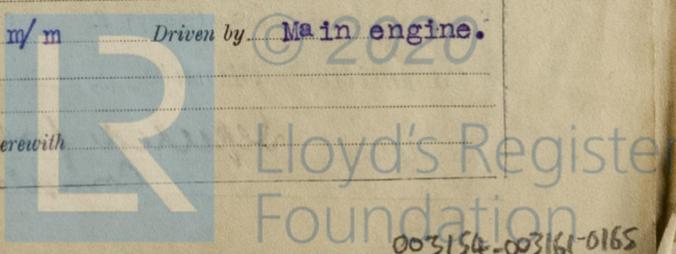
compartment to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

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 2 Diameters 175 x 70 m/m Stroke 170 m/m Driven by Main engine. Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by Small Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by

What provision is made for first Charging the Air Receivers scavenging Air Pumps, No. One Diameter 650 m/m Stroke 170 m/m Driven by Main engine. Auxiliary Engines crank shafts, diameter as per Rule as fitted Position

Have the Auxiliary Engines been constructed under special survey Is a report sent herewith



005154-003161-0165

**AIR RECEIVERS:**—Have they been made under survey Yes State No. of Report or Certificate -  
 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 and cleaned Yes Is a drain fitted at the lowest part of each receiver Yes.  
**Injection Air Receivers, No.** None 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.** Two Total cubic capacity 30 cub.ft. Internal diameter 1' - 9" thickness 13/32"  
 Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength Shell 28/32 tons. Working pressure by Rules 355 lbs.  
ends 26/30tons Actual 355 lbs.

**IS A DONKEY BOILER FITTED?** If so, is a report now forwarded?  
 Is the donkey boiler intended to be used for domestic purposes only

**PLANS.** Are approved plans forwarded herewith for Shafting 26:12:44. Receivers 26:12:44. Separate Fuel Tanks -  
 (If not, state date of approval)  
 Donkey Boilers - General Pumping Arrangements - Pumping Arrangements in Machinery Space -  
 Oil Fuel Burning Arrangements -

**SPARE GEAR.**

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

It is stated by the Engine Builders that the torsional vibration calculations, as required by Notice No. 1803, have been submitted by the Shipbuilder and have been approved.

The foregoing is a correct description,

M. D. A. B. Manufacturer.

Dates of Survey while building  
 During progress of work in shops-- 1945 Aug 20, Sep. 6, 7, 9, 13, 17, 26, 28, Oct 4, 23, 27 Nov 2  
 During erection on board vessel-- 13  
 Total No. of visits 13  
 Dates of Examination of principal parts—Cylinders 29.8.45. Covers 9.9.45. Pistons 13.9.45. Rods 13.9.45. Connecting rods 7.9.45.  
 Crank shaft 6.9.45. Flywheel shaft Thrust Shaft Thrust shaft 6.9.45. Intermediate shafts - 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 Steel Identification Mark 50FW 10:8:45. Flywheel shaft, Material Thrust Shaft Identification Mark -  
 Thrust shaft, Material Steel Identification Mark 747MB 2971 Intermediate shafts, Material - Identification Marks -  
 Tube shaft, Material - Identification Mark - Screw shaft, Material - Identification Mark -  
 Identification Marks on Air Receivers No. 56170 No. 56171  
Lloyd's Test. Lloyd's Test.  
555 lbs. 555 lbs.  
W.P. 355 lbs. W.P. 355 lbs.  
1:8:45. W.A.L. 1:8:45. W.A.L.

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 - 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 Yes If so, state name of vessel M/V "LA RWING" Gls. Rpt. No. 68374.

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
This engine has been built under Special Survey in accordance with the Rules and approved plans.  
The materials and workmanship are good. On completion it has been tried on the bench at full power with satisfactory results.  
This engine has been despatched to Goole for installation in a vessel building at Goole Shipbuilding & Repairing Co., Ltd.,  
Forging Reports and certificates attached for Engine Nos. 583/4.  
Brinell tests were carried out on the Connecting rods and these were found satisfactory  
Material tests on these rods were carried out under B.C. Survey, and Certificates are attached. ( See above re. Torsional Vibration Calculations.)

The amount of Entry Fee .. £ 30 0 0 When applied for, 7 NOV 1946  
 Special 22.11.45 Hill 11.16/ £ 35 0 0 When received,  
 Donkey Boiler Fee .. £ 35 0 0  
 Travelling Expenses (if any) £ : : 19

Mhos. P. Gibson  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 27 NOV 1945  
 Assigned Deferred for completion



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