

# REPORT ON OIL ENGINE MACHINERY.

No. 63257

Received at London Office 28 1940

Date of writing Report 25.12.40 When handed in at Local Office 19 Port of Glasgow  
Date, First Survey 24 May 1940 Last Survey 13 Dec. 1940  
Number of Visits 16

Survey held at Glasgow  
Screw vessel MS. Empire Cliff  
Tons Gross Net

By whom built Goole S/B & Repairing Co Ltd No. 357 When built 1940  
By whom made British Auxiliaries Ltd Engine No. 376 When made 1940  
Boiler No. When made  
Port belonging to  
Brake Horse Power 520 Owners  
Nom. Horse Power as per Rule 118 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

Trade for which vessel is intended

ENGINES, &c. Type of Engines Heavy Oil Type M47I 2 or 4 stroke cycle 2 Single or double acting Single  
Maximum pressure in cylinders 782 lbs  $\square$  Diameter of cylinders 250  $\frac{7}{16}$  Length of stroke 420  $\frac{7}{16}$  No. of cylinders 7 No. of cranks 7  
Mean Indicated Pressure 96.7 lbs  $\square$

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 366  $\frac{7}{16}$  Is there a bearing between each crank yes  
Revolutions per minute 300 Flywheel dia. 1050  $\frac{7}{16}$  Weight 625 lbs Means of ignition Compression Kind of fuel used Diesel

Crank Shaft, Solid forged dia. of journals as per Rule 155  $\frac{7}{16}$  Crank pin dia. 170  $\frac{7}{16}$  Crank Webs Mid. length breadth 226  $\frac{7}{16}$  Thickness parallel to axis  $\checkmark$   
Semi-built as fitted 170  $\frac{7}{16}$  Mid. length thickness 95  $\frac{7}{16}$  Thickness around eyehole  $\checkmark$   
All built

Flywheel Shaft, diameter as per Rule 155  $\frac{7}{16}$  Intermediate Shafts, diameter as per Rule 117  $\frac{7}{16}$  Thrust Shaft, diameter at collars as per Rule 123  $\frac{7}{16}$   
as fitted 170  $\frac{7}{16}$  as fitted

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

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 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

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 declutched yes Means of lubrication forced

Thickness of cylinder liners 19.5  $\frac{7}{16}$  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. 1 off 150  $\frac{7}{16}$  x 60  $\frac{7}{16}$  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 120  $\frac{7}{16}$  Stroke 60  $\frac{7}{16}$  Can one be overhauled while the other is at work

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

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 2 off 2775 gallons per Hour each  
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 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

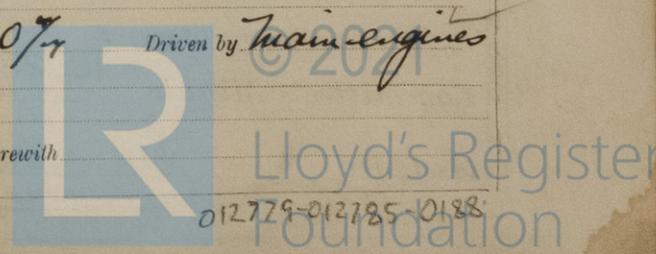
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Main Air Compressors, No. One No. of stages 2 Diameters 70  $\frac{7}{16}$  x 175  $\frac{7}{16}$  Stroke 170  $\frac{7}{16}$  Driven by Main engines  
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  $\frac{7}{16}$  Stroke 170  $\frac{7}{16}$  Driven by Main engines

Auxiliary Engines crank shafts, diameter as per Rule No. Position  
as fitted

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



30/12/40

**AIR RECEIVERS:**—Have they been made under survey No. Admiralty Survey State No. of Report or Certificate Please See London Letter  
 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.** ✓ 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.** Two Total cubic capacity 28 cubic ft Internal diameter 1'-9" thickness 13/32"  
 Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength 26/32 tons Working pressure by Rules 355 lb  
 Actual 355 lb

**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 22-4-36 Receivers 23-5-32 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

The foregoing is a correct description,

[Signature] Manufacturer.

Dates of Survey while building  
 During progress of work in shops-- 1940 May 24 June 19 July 1. 10. 16. 23 Aug. 2. 26. 31 Sep 5. 16 Oct. 14 Nov. 18 25 Dec. 9. 13  
 During erection on board vessel--  
 Total No. of visits 16

Dates of Examination of principal parts—Cylinders 24-5-40 Covers 1-7-40 2-8-40 23-7-40 Pistons 25-11-40 Rods 10-7-40 Connecting rods 10-7-40  
 Crank shaft 1-7-40 Flywheel shaft and Thrust shaft 1-7-40 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 W.T.M. 14-5-40 Flywheel shaft, Material steel Identification Mark and  
 Thrust shaft, Material Steel Identification Mark LLOYD'S No. 180 Intermediate shafts, Material Identification Marks  
 Tube shaft, Material Identification Mark Screw shaft, Material Identification Mark  
 Identification Marks on Air Receivers WAD  
TESTED. 555 lb  
10-9-40.

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  
 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 70 Silvertown Gt. rpt No. 6163

**General Remarks** (State quality of workmanship, opinions as to class, &c.) These engines have been built under special survey in accordance with the Rules and approved plans. The materials and workmanship are good. On completion they were tried on the bench at full power with satisfactory results. These engine are to the order of Messrs Goole Shipbuilding and Repairing Co. and intended for a vessel building at their yard under No. 357

The requirements of the M.O.S. Specification have been satisfactorily carried out.

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 .. £ 3 0 0 When applied for, 26/12/40  
 Special 26/3/24-11-8 £ 36-17-6  
 Donkey Boiler Fee ... £ : : When received, all  
 Travelling Expenses (if any) £ : : 19

G. E. Murdoch  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE 25 FEB 1941**

Assigned See minute on  
Stul 57051

