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REPORT ON OIL ENGINE MACHINERY.

No. 14067.

31 MAR 1950

Received at London Office

N. D. O. 3rd March, 1950. When handed in at Local Office 27th March, 1950. Port of MANCHESTER.
No. in Survey held at MANCHESTER. Date, First Survey 10th Oct., 1949. Last Survey 8th February, 1950.
Reg. Book. Number of Visits 12.

Single on the ~~1000~~ ~~1000~~ Screw vessel UNCLASSIFIED VESSEL. Tons Gross Net.
Built at Openshaw. By whom built Messrs. Crossley Bros. Ltd., Contract No. 11219. Yard No. When built 1949.
Engines made at Openshaw. By whom made Messrs. Crossley Bros. Ltd., Engine No. 138629. When made 1949.
Monkey Boilers made at. By whom made. Boiler No. When made.
Brake Horse Power 340. Client Vereenigde Prauwen. Port belonging to Vereen, N.V. Java.
M.N. Power as per Rule 84. Is Refrigerating Machinery fitted for cargo purposes. Is Electric Light fitted.

OIL ENGINES, &c. — Type of Engines Vertical Heavy Oil - Crossley HRL, 4 or 4 stroke cycle. 2. Single or double acting Single.
Maximum pressure in cylinders 950 lbs/sq. inch. Diameter of cylinders 10 1/2". Length of stroke 13 1/2". No. of cylinders 4. No. of cranks 4.
Mean Indicated Pressure 92 lbs/sq. inch. Ahead Firing Order in Cylinders 1, 4, 2, 3. Span of bearings, adjacent to the crank, measured from inner edge to inner edge 14.11/16". Is there a bearing between each crank Yes. Revolutions per minute 400.

Flywheel dia. 37 1/2". Weight 2166 lbs. Moment of inertia of flywheel (lbs. in² or Kg. cm²) 500,000. Means of ignition Compression. Kind of fuel used Diesel Oil.
Crank Shaft, Solid forged dia. of journals as per Rule. Approved. 7 1/2". Crank pin dia. 7 1/2". Crank webs Mid. length breadth 9 1/2". Thickness parallel to axis. Mid. length thickness 3.23/32". shrunk Thickness around eye hole.
Flywheel Shaft, Mounted on end of crankshaft. Intermediate Shafts, diameter as per Rule. Thrust Shaft, diameter at collar as fitted. 4 3/4".

Tube Shaft, diameter as per Rule. Screw Shaft, diameter as fitted. Is the (tube) shaft fitted with a continuous liner ()
Bronze Liners, thickness in way of bushes as per Rule. Thickness between bushes 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 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
Moment of inertia of propeller (lbs. in² or Kg. cm²) Kind of damper, if fitted.
Method of reversing Engines Direct - Compressed Air. Is a governor or other arrangement fitted to prevent racing of the engine when de-actuated. Yes. Means of lubrication Forced. Thickness of cylinder liners 7/8". Are the cylinders fitted with safety valves. Yes. Are the exhaust pipes and silencers water cooled Exhaust Manifold Watercooled. 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. Diameter 4 1/4". Stroke 3". Can one be overhauled while the other is at work. Yes.

Bilge Pumps worked from the Main Engines, No. 1. Diameter 4 1/4". Stroke 3". Can one be overhauled while the other is at work. Yes.
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. 2 - 1 1/2" & 2.3/16" dia. x 2" 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 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 suction pipes 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.

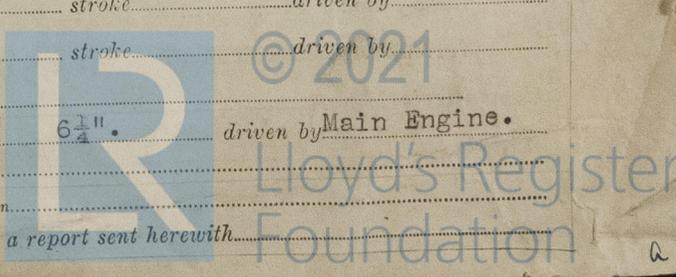
Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times.
Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from 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. 1. No. of stages 2. diameters 5 3/4" & 2 1/2" stroke 4" 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. 1 - Double Acting Tandem. diameter 20 1/2". stroke 6 1/4". driven by Main Engine.
Auxiliary Engines crank shafts, diameter as per Rule. Position. No. Is a report sent herewith.

Have the auxiliary engines been constructed under special survey.

18/4/50

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AIR RECEIVERS:—Have they been made under survey... Yes. State No. of report or certificate **C.10055 & C.10056**
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule. **Fusible Plug on Receivers - Safety valve on Air**
 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, welded or riveted longitudinal joint..... **Material**..... **Range of tensile strength**..... **Working pressure**.....
Starting Air Receivers, No. **2**..... **Total cubic capacity** **30 cu. ft.** **Internal diameter** **2' - 0.1/8"** **thickness** **3/8"**
 Seamless, welded or riveted longitudinal joint **Welded.** **Material** **O.H. Steel.** **Range of tensile strength** **26/30 Tons.** **Working pressure**.....
 by Rules..... **Actual**..... **Approv**..... **Actual**..... **350 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... **30th September, 1949.** Receivers..... Separate fuel tanks.....
 (If not, state date of approval)
 Donkey boilers..... General pumping arrangements..... Pumping arrangements in machinery space.....
 Oil fuel burning arrangements.....
 Have Torsional Vibration characteristics been approved... **Not submitted - unclassified vessel.** Date of approval.....

SPARE GEAR.

Has the spare gear required by the Rules been supplied.....
 State the principal additional spare gear supplied.....

See for

The foregoing is a correct description,
CROSSLEY BROTHERS LIMITED, Manufacturer.

Dates of Survey while building: During progress of work in shops - - **1949. Oct. 10, 24. Nov. 16, 28, 30. Dec. 5, 9, 12, 30. 1950. Jan. 3. Feb. 6, 8.**
 During erection on board vessel - - -
 Total No. of visits.....
 Dates of examination of principal parts—Cylinders **30.11.49** Covers **28/30.11.49** Pistons **3.1.50** Liners **16.11.49** Connecting rods **13.10.49**
 Crank shaft **9.9.49** Flywheel shaft - Thrust shaft **29.11.49** Intermediate shafts..... Tube shaft.....
 Screw shaft..... Propeller..... Stern tube..... Engine seatings..... Engine holding down bolts.....
 Completion of fitting sea connections..... Completion of pumping arrangements..... Engines tried under working conditions.....
 Crank shaft, material **.40 Carbon Steel.** Identification mark **Lloyd's 6284 - THS.** Flywheel shaft, material..... Identification mark.....
 Thrust shaft, material **O.H. Steel.** Identification mark **Lloyd's 3846 - THS.** Intermediate shafts, material..... Identification marks.....
 Tube shaft, material..... Identification mark..... Screw shaft, material..... Identification mark.....
 Identification marks on air receivers **81/480239 - Lloyd's Test 700 lbs - T.100 - 28.12.49. T.D.S.**
 " " " " **- T.102 - 28.12.49. T.D.S.**

Welded receivers, state Makers' Name **Ruston & Hornsby Ltd.**
 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.....
 Description of fire extinguishing apparatus fitted.....
 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..... If so, state name of vessel.....

General Remarks (State quality of workmanship, opinions as to class, &c. This engine has been constructed under Special Survey in accordance with the Society's Rules and approved plans.
 The materials and workmanship are good.
 On completion of erection, the engine, coupled to a dynamometer, has been examined under working conditions on the test bed, developing full load for 6 hours followed by 1 hour at 10% overload, and found satisfactory.
 This engine is being exported to Java and is not intended for use in a vessel classed with this Society.
 Attached herewith Forging Reports Nos. F.6149 and F.6150, also air receivers certs. Nos. C.10055 and C.10056, and engine Cert. C.8676.

The amount of Entry Fee ... £ 22 : 8 : 0
 Special ... £ : : : When applied for **22.8.1950.**
 Donkey Boiler Fee... £ : : : When received **19**
 Travelling Expenses (if any) £ 1 : 0 : 0

John A. Smeaton
 Engineer Surveyor to Lloyd's Register of Shipping.

 Lloyd's Register Foundation

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

Committee's Minute
 Assigned **no action**