

REPORT ON OIL ENGINE MACHINERY.

No. 15273.

DATE 2 DEC 1952

Date of writing Report 12th November 52. When handed in at Local Office 19 Port of MANCHESTER.
 No. in Survey held at OPENSHAW, MANCHESTER. Date, First Survey 1st Dec. 1951. Last Survey 14th November 19 52.
 Reg. Book. SMYTH on the Twin Screw vessel. m.s.c. Ranger. Number of Visits 31.
 Built at Leith. By whom built Henry Robb Ltd., Tons Gross 154.18
 Engines made at Openshaw. By whom made Crossley Bros. Ltd. Contract 11563. Yard No. 415.E When built 1952.
 Donkey Boilers made at Openshaw. By whom made Crossley Bros. Ltd. Engine No. 142826 When made 1952.
 Brake Horse Power 1200 Total. Owners Manchester Ship Canal Co. Boiler No. 142825 When made 1952.
 M.N. Power as per Rule 240. Is Refrigerating Machinery fitted for cargo purposes. Port belonging to Manchester.
 Trade for which vessel is intended. Is Electric Light fitted.

OIL ENGINES, &c. — Type of Engines Vertical Solid Injection Heavy Oil CRL.4. 2 or 4 stroke cycle 2. Single or double acting Single.
 Maximum pressure in cylinders 950 lbs/sq.inch. Diameter of cylinders 14 1/2" Length of stroke 19" No. of cylinders 4 x 2. No. of cranks 4 x 2.
 Mean Indicated Pressure 95 lbs/sq.inch. Ahead Firing Order in Cylinders P. 1.4.2.3. S. 1.3.2.4. Span of bearings, adjacent to the crank, measured from inner edge to inner edge 17 3/8"
 Flywheel dia. 46" Weight 4109 lbs Moment of inertia of flywheel (lbs. in²) 1,330,000. Is there a bearing between each crank Yes. Revolutions per minute 250.
 Crank Shaft, Solid forged dia. of journals as per Rule Approved. Crank pin dia. 9 1/2" Crank webs 12 1/2" Mid. length breadth 4 3/4" Thickness parallel to axis shrunk
 Flywheel Shaft, diameter as per Rule Approved. Intermediate Shafts, diameter as per Rule 10" Thrust Shaft, diameter at collars as per Rule approved.
 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 { as fitted. / as per Rule. }

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 as fitted.
 If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner as fitted.
 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 as fitted.
 If two liners are fitted, is the shaft lapped or protected between the liners as fitted. Is an approved Oil Gland or other appliance fitted at the after end of tube shaft as fitted. If so, state type as fitted.
 Length of bearing in Stern Bush next to and supporting propeller as fitted.
 Propeller, dia. as fitted. Pitch as fitted. No. of blades as fitted. Material as fitted. whether moveable as fitted. Total developed surface as fitted. sq. feet as fitted.

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 1" Are the cylinders fitted with safety valves Yes. Are the exhaust pipes and silencers water cooled or lagged with non-conducting material as fitted.
 If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine as fitted. Cooling Water Pumps, No. One - 7 1/4" Bore x 5 5/8" Stroke driven by engine. Is the sea suction provided with an efficient strainer which can be cleared within the vessel as fitted.
 Bilge Pumps worked from the Main Engines, No. One. Diameter 7 1/4" Stroke 5 5/8" Can one be overhauled while the other is at work as fitted.
 Pumps connected to the Main Bilge Line { No. and size as fitted. / How driven as fitted. }
 Is the cooling water led to the bilges as fitted. If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements as fitted.

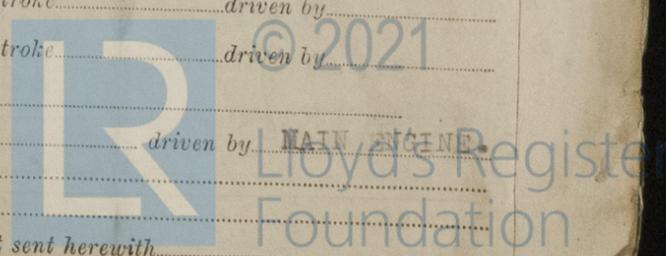
Ballast Pumps, No. and size as fitted. Power Driven Lubricating Oil Pumps, including spare pump, No. and size as fitted. Gear Type. Engine Pump - 7500 GPH Lift Pump - 11200 GPH.
 Are two independent means arranged for circulating water through the Oil Cooler as fitted. Suctions, connected to both main bilge pumps and auxiliary bilge pumps, No. and size:—In machinery spaces as fitted. In pump room as fitted.
 In holds, &c. as fitted.

Independent Power Pump Direct Suctions to the engine room bilges, No. and size as fitted.
 Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes as fitted. Are the bilge suction 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 as fitted.
 Are all Sea Connections fitted direct on the skin of the Ship as fitted. Are they fitted with valves or cocks as fitted. Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates as fitted. Are the overboard discharges above or below the deep water line as fitted.
 Are they each fitted with a discharge valve always accessible on the plating of the vessel as fitted. Are the blow off cocks fitted with a spigot and brass covering plate as fitted.
 What pipes pass through the bunkers as fitted. How are they protected as fitted.
 What pipes pass through the deep tanks as fitted. Have they been tested as per Rule as fitted.

Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times as fitted.
 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 as fitted. Is the shaft tunnel watertight as fitted. Is it fitted with a watertight door as fitted. worked from as fitted.
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork as fitted.
 Main Air Compressors, No. One. No. of stages 2. diameters 8" & 3 1/2" stroke 5 5/8" driven by Main Engine.
 Auxiliary Air Compressors, No. as fitted. No. of stages as fitted. diameters as fitted. stroke as fitted. driven by as fitted.
 Small Auxiliary Air Compressors, No. as fitted. No. of stages as fitted. diameters as fitted. stroke as fitted. driven by as fitted.

What provision is made for first charging the air receivers as fitted.
 scavenging Air Pumps, No. One - Rootes Type Blower. diameter as fitted. stroke as fitted. driven by MAIN ENGINE.
 Auxiliary Engines crank shafts, diameter as per Rule as fitted. No. as fitted. Position as fitted.
 Have the auxiliary engines been constructed under special survey as fitted. Is a report sent herewith as fitted.

JM
8/1/53



AIR RECEIVERS:—Have they been made under survey... Yes. State No. of report or certificate. Advice Note No. 1370
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule Fusible Plug - S.V. on Compressor.
 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 by Rules.....
Starting Air Receivers, No. Four.....Total cubic capacity 62 Cu. Ft. Internal diameter 18 1/2" thickness 5/16"
 Seamless, welded or riveted longitudinal joint.....Material Steel Range of tensile strength 30/36 Working pressure Actual...350 P.S.I.

IS A DONKEY BOILER FITTED.....If so, is a report now forwarded.....
 Is the donkey boiler intended to be used for domestic purposes only.....
Approved 20.7.50.

PLANS. Are approved plans forwarded herewith for shafting.....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... Yes. Date of approval 20.7.50.

SPARE GEAR.

Has the spare gear required by the Rules been supplied... AS PER RULE REQUIREMENTS.
 State the principal additional spare gear supplied.....

Seech

The foregoing is a correct description, and the particulars of the installation, as fitted, are as approved for Torsional Vibration Characteristics
CROSSLEY BROTHERS LIMITED, Manufacturer.

Dates of Survey while building
 During progress of work in shops - - 1951, Dec. 21st. 1952, Jan 10th, 21st. Feb. 1, 5, 6, 7. Mar. 3, 5, 11, 17. April 2, 7, 15, 17, 30th. June 13, 19, 25. XXXXXXXXXXXXXXXX July, 14, 18, 23. Aug. 29. Sept. 26. Oct. 23, 29, 30, 31. Nov. 3, 11.
 During erection on board vessel - -

Dates of examination of principal parts
 Cylinders 6.2.52. 11.3.52. 30.5.52. & 12.6.52. 18.7.52. Covers 11.3.52. 30.5.52. & 12.6.52. 18.7.52. Pistons 26.9.52. Rods 13.11.51.
 Crank shaft 3.10.51. 2.1.52. Crankshaft Extension 18.7.52 & 14.7.52. Flywheel shaft 25.7.51. Thrust shaft - Intermediate shafts.....Tube shaft.....

Screw shaft.....Propeller.....Stern tube.....Engine ratings.....Engine holding down bolts.....
 Completion of fitting sea connections.....Completion of pumping arrangements.....Engines tried under working conditions.....
 Crank shaft, material O.H. Steel Identification mark LLOYD'S 117. RF. 1041. 3.10.51. R.J.V. LLOYD'S 4045 THS. 25.7.51. Flywheel shaft, material.....Identification mark.....
 Thrust shaft, material.....Identification mark LLOYD'S 649. RF. 1066 2.1.52. R.J.V. LLOYD'S R.J.V. 7.11.52. Intermediate shafts, material.....Identification marks.....
 Tube shaft, material.....Identification mark.....Screw shaft, material.....Identification mark.....
 Identification marks on air receivers.....
 C.T. Co. 248531 R.R. 28.3.51. H.T. 1000 lbs. W.P. 500 L.R. B.S.
 C.T. Co. 248533 " " " " " " " " " "
 C.T. Co. 248535 " " " " " " " " " "
 C.T. Co. 248538 " " " " " " " " " "

Welded receivers, state Makers' Name.....
 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... Yes. If so, state name of vessel Richard Dunston Yard No. 662/3 667/8

General Remarks (State quality of workmanship, opinions as to class, &c. These engines have been constructed under Special Survey of tested materials in accordance with the Secretary's letter, approved plans and Requirements of the Rules. Materials and Workmanship are good and when tested in the shop under full load conditions showed satisfactory results. The Torsional Vibration Characteristics of the shafting installation have been approved for a service speed of 250 R.P.M., provided that the governor be adjusted to prevent the engine speed rising above 280 R.P.M., and a Notice Board to this effect be fitted at the Control Station and the tachometer marked accordingly. In my opinion, these engines are suitable for installation in a vessel to be classed with this Society for the purpose intended.)

Attached hereto: - Manchester Rpts Nos. F.8062, covering Ext. Shaft, F.6385 covering Ext. Shaft, Sheffield Rpts. Nos. 55040 and 53248 covering Crankshafts.

This machinery has been installed on board. Tested under full working conditions with satisfactory results

The amount of Entry Fee ... £ 80 : - :
 Special ... £ : :
 Donkey Boiler Fee... £ : :
 Travelling Expenses (if any) £ 6 10 : - :
 When applied for 28/11/52
 When received.....19.....
 Engineer Surveyor to Lloyd's Register of Shipping.
John Thomas

GLASGOW 10 FEB 1953



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

(The Committee's Minute Assigned) SEE ACCOMPANYING MACHINERY REPORT