

REPORT ON OIL ENGINE MACHINERY.

No. 15506.

30th April, 1953.

Received at London Office

Date of writing Report

When handed in at Local Office 25th May, 1953

Port of Manchester.

27 MAY 1953

Survey held at Manchester.

Date, First Survey 3rd December, 1952. Last Survey 4th May, 1953.

Survey Book.

Number of Visits 11.

Single
on the Twin
Triple
Quadruple

Screw vessel. 250 Ton Coaster Classed Vessel. **INSUMAR**
Contract No. 10005.

Tons
Gross
Net

Port of Trieste

By whom built Cantieri Navale Giuliano.

Yard No. 36. When built

Engines made at Openshaw.

By whom made Messrs. Crossley Bros. Ltd.

Engine No. 146643. When made

Monkey Boilers made at

By whom made

Boiler No. When made

Indicated Horse Power 300

Owners Indonesian Republic

Port belonging to

Power as per Rule 60

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

Trade for which vessel is intended

L ENGINES, &c. Type of Engines Crossley HRM4 - Vertical Heavy Oil. / 2 or 4 stroke cycle. 2. Single or double acting Single

Maximum pressure in cylinders 95.0 lbs/sq. in. Diameter of cylinders 10 1/2" Length of stroke 13 1/2" No. of cylinders 4 No. of cranks 4

Mean Indicated Pressure 100 lbs/sq. in. 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 300

Weight 2166 Moment of inertia of flywheel (lbs. in² or Kg. cm.²) 500,000 lbs in. sec². Compression

Kind of fuel used Diesel

Intermediate Shafts, diameter as per Rule as fitted

Thrust Shaft, diameter at collars as per Rule as fitted 4 3/8"

Screw Shaft, diameter as per Rule as fitted

Is the (tube screw) shaft fitted with a continuous liner

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

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. cm.²) Kind of damper, if 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 7/8". Are the cylinders fitted with safety valves. Yes. Are the exhaust pipes and silencers water cooled

lagged with non-conducting material. 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 4 1/2 x 3" 2520 G.P.H. 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 4 1/2" 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.

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 - 882 G.P.H. 1 - 1440 G.P.H.

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.

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 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

efficiently 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.

On 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 Two. diameters 5 3/4" & 2 1/2" stroke 4" driven by Main Engine

Auxiliary Air Compressors, No. No. of stages. diameters. stroke. driven by

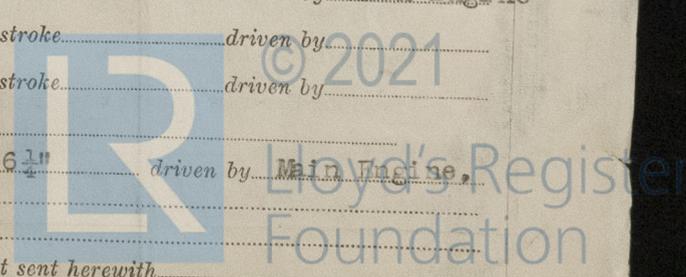
What provision is made for first charging the air receivers. Driven by

Reversing Air Pumps, No. 1 - D.A. Tandem. diameter 20 1/2" stroke 6 1/2" driven by Main Engine.

Auxiliary Engines crank shafts, diameter as per Rule as fitted. Position. Is a report sent herewith.

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JM
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AIR RECEIVERS:—Have they been made under survey... Yes. State No. of report or certificate C.15653 and C.15657.

Is each receiver, which can be isolated, fitted with a safety valve as per Rule... Can the internal surfaces of the receivers be examined and cleaned... 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. Two... Total cubic capacity 30 ft³... Internal diameter 2 1/4" thickness... Seamless, welded or riveted longitudinal joint Welded... Material Steel... Range of tensile strength... Working pressure 350 P.S.

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 28th August, 1952... Receivers... Separate fuel tanks... Donkey boilers... General pumping arrangements... Pumping arrangements in machinery space... Oil fuel burning arrangements... Have Torsional Vibration characteristics been approved Yes Date of approval 26th September, 1952.

SPARE GEAR.

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

Handwritten signature/initials.

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

Dates of Survey while building... During progress of work in shops... During erection on board vessel... Total No. of visits... Dates of examination of principal parts—Cylinders 18.2.53. Covers 18.2.53. Pistons 6.3.53. Rods 13.2.53. Connecting rods 17.9.52. Crank shaft 6.2.53. Flywheel shaft... Thrust shaft 18.2.53. 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 O.H. Steel. Identification mark LLOYD'S 4724. 6.2.53. W.T.M. 51 EBT.117. Flywheel shaft, material... Identification mark... Thrust shaft, material O.H. Steel. Identification mark LLOYD'S 4619. 18.2.53. N.W.T. 50 EBT.16. Intermediate shafts, material... Identification marks... Tube shaft, material... Identification mark... Screw shaft, material... Identification mark... Identification marks on air receivers... No. 9501/51. LLOYD'S TBST. 575 lbs. W. P. 350 lbs. J.B.T. E.W. 16.9.52. No. 9501/55. LLOYD'S TBST. 575 lbs. W.P. 350 lbs. J.B.T. E.W. 16.9.52.

Welded receivers, state Makers' Name Messrs. Whiteley-Read Engineers 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, Speed restrictions, &c. This engine has been constructed under special survey in accordance with the Society's Rules and the approved plans. The materials and workmanship are good, and the engine, when tested under working conditions on the test bed, coupled to a dynamometer and developing full load for 6 hours followed by 1 hour at 10% overload, was found satisfactory. The Torsional Vibration Characteristics of the shafting installation have been approved for a service speed of 300 R.P.M., provided a notice board be fitted at the control station, stating that engine is not to be operated continuously between 220 and 255 R.P.M, and the engine tachometer be marked accordingly, or alternatively, provided torsionographs records taken from the completed installation indicate that stresses in the straight shafting arising from the 1-node 4th order critical speed calculated to occur at 236 R.P.M. are satisfactory for continuous operation. The engine is in my opinion suitable for installation in a vessel classed with this Society.

ATTACHED HERETO:- Manchester Report No. F.7807, - covering Thrust Shaft. Manchester Report No. F.8140 - covering Crankshaft. Nottingham Reports Nos. C.15653 - covering Air Receivers C.15657. The amount of Entry Fee ... £ 22 : - : - : Special ... £ : : : Donkey Boiler Fee... £ : : : Travelling Expenses (if any) £ 2 : 16 : - : Committee's Minute Assigned See Rpt. 4b. TUESDAY - 1 DEC 1953

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

