

REPORT ON OIL ENGINE MACHINERY.

No. 14917.

1 OMAR 1952

Date of writing Report 13th February, 1952. When landed in at Local Office 5th March, 1952. Received at London Office 19 Port of MANCHESTER.

No. in Survey held at MANCHESTER. Date, First Survey 6th March, 1950. Last Survey 23rd November 1951.

Reg. Book. Single Screw vessel M.V. BUNGA Tons Gross 151 Net 143

Built at Openshaw Works. By whom built Singapore Harbour Board Yard No. 151 When built 1951.

Engines made at Openshaw Works. By whom made Crossley Bros. Ltd., Contract 12001. Engine No. 143491. When made 1951.

Donkey Boilers made at 300. By whom made Client:- W. Hammer & Co. Ltd., Boiler No. When made

Brake Horse Power. 300. Client:- W. Hammer & Co. Ltd., Port belonging to Singapore.

M.N. Power as per Rule. 90. 60 Is Refrigerating Machinery fitted for cargo purposes. Is Electric Light fitted.

Trade for which vessel is intended.

OIL ENGINES, &c. — Type of Engines Vertical Solid Injection Heavy Oil HRN 4. 2 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 99 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 300.

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

Crank Solid forged as per Rule Approved. Crank pin dia. 7 1/4" Crank webs Mid. length breadth 9 1/4" Thickness parallel to axis Mid. length thickness 3.23/32" shrunk Thickness around cyclo. 4 1/2"

Flywheel Mounted on end of Crankshaft. as per Rule Approved. Intermediate Shafts, diameter as fitted. Thrust Shaft, diameter at collars as fitted.

Tube Shaft, diameter as per Rule. Screw Shaft, diameter as per Rule. Is the {tube/screw} 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. Is a governor or other arrangement fitted to prevent racing of the engine Yes. Means of lubrication Forced. Thickness of cylinder liners 7/8". Are the cylinders fitted with safety valves Yes. Exhaust Manifold Watercooled. 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 - 4 1/4" dia. x 3" 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 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 Gear Type Chain Driven from Main Engine - 1 - 882 G.P.H. Power Driven Lubricating Oil Pumps, including spare pump, No. and size 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.

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 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 5/8" & 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 1/2". driven by Main Engine.

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

Have the auxiliary engines been constructed under special survey. Is a report sent herewith.

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Lloyd's Register Foundation

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Nottingham C.12811
and C.13451.

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... Fusible plug on Air Receiver - Safety Valve on Air 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**...
Starting Air Receivers, No. 2. **Total cubic capacity** 30 cu. ft. **Internal diameter** 2'-0 $\frac{1}{8}$ " **thickness** $\frac{3}{8}$ " & 15/32" **Working pressure** 26/30.
Seamless, welded ~~XXXXXXXXXXXX~~ **Material** O.H. Steel. **Range of tensile strength**... **Working pressure**...
by Rules... Actual... Approved...
350 lbs/sq. inch.

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... 31st August, 1951. 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... 28th November, 1951.

SPARE GEAR.

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

Fixed for

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

Dates of Survey while building
During progress of work in shops - - 1950. March 6, 8. 1951. April 25. July 3. Aug. 20, 29. Sept. 7, 20, 26. Oct. 9, 10, 19. Nov. 2, 22, 23.
During erection on board vessel - -
Total No. of visits...
Dates of examination of principal parts—Cylinders... 9.10.51. Covers... 26.9.51. Pistons... 19.10.51. Liners... 6 & 8.3.50.
Crank shaft... 20.9.51. Flywheel shaft... 10.10.51. Thrust shaft... 10.10.51. Intermediate shafts... 7.9.51. Connecting rods... 25.4.51.
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 4344 50.EB.24. Flywheel shaft, material... Identification mark...
Thrust shaft, material... O.H. Steel. Identification mark... LLOYD'S 3238 EB.346. Intermediate shafts, material... Identification marks...
Tube shaft, material... Identification mark... Screw shaft, material... Identification mark...
Identification marks on air receivers... 81/500055 LLOYD'S H.T. 700 lbs. W.P. 350 lbs. T.D.S. 7.5.51. T.204.
" " " " " " T.D.S. 29.8.51. T.206.

Welded receivers, state Makers' Name Messrs. Ruston & Hornsby Ltd., Lincoln.
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... No. 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 of...)
tested materials in accordance with the Secretary's letters, approved plans and Requirements of the Rules. The material
and workmanship are good and the engine when tested in the shop under full load conditions, coupled direct to an
hydraulic dynamometer, showed satisfactory results.

In our opinion, this engine is suitable for installation on board a vessel to be classed with this Society for the
purpose intended.

Attached hereto Mch. Rpt. 6 Nos. F.7241 & F.7557, together with Nottingham Air Receiver Certs. Nos. C.12811 & C.13451

The amount of Entry Fee... 2/3rd of £36/0/0d. ... £ 24 0 0.
Special ... £ :
Donkey Boiler Fee... £ :
Travelling Expenses (if any) £ 3 15 0.
When applied for 6/3/52 1952
When received 19

Committee's Minute...
Assigned Sir F.E. Michy. rpt. Eng. 9317.

John for T. A. Shearman & Sterling
E. J. Atkins.
Engineer Surveyor to Lloyd's Register of Shipping.

