

# REPORT ON OIL ENGINE MACHINERY.

No. 15577

Received at London Office

13 JUL 1953

Reporting Report. 3rd July, 19 53. When handed in at Local Office. 11th July, 19 53. Port of Manchester.

Survey held at Date, First Survey. 19th June, 52 Last Survey. 26th May, 19 53. Number of Visits 11

Single on the Twin Triple Quadruple Screw vessel. Tons Gross Net.

Northwich, Cheshire. By whom built W. & J. Varwood & Son Ltd. Yard No. 886 When built.

made at Manchester. By whom made Crossley Bros. Ltd. Engine No. 144395 When made. 1953.

Boilers made at By whom made Contract No. 12242 Boiler No. When made.

orse Power. 550 Owners Esso Petroleum Co. Ltd. Port belonging to London

er as per Rule. 110 Is Refrigerating Machinery fitted for cargo purposes. Is Electric Light fitted.

which vessel is intended. 70 ft. River Tug for Service on the Thames.

GINES, &c. Type of Engines. Vertical Solid Injection Heavy Oil HGN.5. 2 or 4 stroke cycle. 2 Single or double acting Single

pressure in cylinders 95.0 lbs./sq. Diameter of cylinders. 10 1/2 Length of stroke. 13 1/2 No. of cylinders. 5 No. of cranks. 5

licated Pressure 90 lbs./sq. Ahead Firing Order in Cylinders 1, 5, 2, 3, 4. Span of bearings, adjacent to the crank, measured

er edge to inner edge. 14.11/16 Is there a bearing between each crank. Yes Revolutions per minute. 500

dia. 3 1/2 Weight 2166 lb. Moment of inertia of flywheel (lbs. in<sup>2</sup> or Kg. cm.<sup>2</sup>). Means of ignition. Kind of fuel used. Diesel

Solid forged dia. of journals as per Rule. Approved Crank pin dia. 7 1/2 Crank webs Mid. length breadth. 9 3/4 Thickness parallel to axis.

All built mounted in end of Crankshaft as fitted. 7 1/2 Crank webs Mid. length thickness. 3.23/32 shrunk Thickness around eyehole.

Shaft, diameter as per Rule. Intermediate Shafts, diameter as fitted. Thrust Shaft, diameter at collars as fitted.

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

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

boss. If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner.

ner 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-

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

be shaft. If so, state type. Length of bearing in Stern Bush next to and supporting propeller.

r, dia. Pitch. No. of blades. Material. whether moveable. Total developed surface. sq. feet

of inertia of propeller (lbs. in<sup>2</sup> or Kg. cm.<sup>2</sup>). Kind of damper, if fitted.

of reversing Engines. Is a governor or other arrangement fitted to prevent racing of the engine when declutched. Yes Means of

on Forced Thickness of cylinder liners. 7/8 Are the cylinders fitted with safety valves. Yes Are the exhaust pipes and silencers water cooled

old water cooled with non-conducting material. If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned

he engine. Cooling Water Pumps, No. 1 4 1/2 dia. x 3 stroke Is the sea suction provided with an efficient strainer which can be cleared within the vessel.

mps worked from the Main Engines, No. 1 Diameter. 4 1/2 Stroke. 3 Can one be overhauled while the other is at work.

connected to the Main Bilge Line No. and size. How driven.

oling 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

ments Chain driven from Main Engine 1 - 1470 G.P.H.

Pumps, No. and size. Power Driven Lubricating Oil Pumps, including spare pump, No. and size. 1 - 2400 G.P.H.

independent means arranged for circulating water through the Oil Cooler. Suctions, connected to both main bilge pumps and auxiliary

mps, No. and size:—In machinery spaces. In pump room.

, &c.

dent Power Pump Direct Suctions to the engine room bilges, No. and size.

he bilge suction pipes in holds and tunnel well fitted with strum-boxes. Are the bilge suction in the machinery spaces led from easily

e mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges.

ea Connections fitted direct on the skin of the Ship. Are they fitted with valves or cocks. Are they fixed

ly 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.

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.

pes pass through the bunkers. How are they protected.

pes pass through the deep tanks. Have they been tested as per Rule.

pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times.

rrangement 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

or from one compartment to another. Is the shaft tunnel watertight. Is it fitted with a watertight door. worked from.

od vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork.

Air Compressors, No. 1 No. of stages. 2 diameters. 2 1/2 x 5 3/4 stroke. 4 driven by Engine

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

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

rovision is made for first charging the air receivers.

ging Air Pumps, No. 1 diameter. 20 1/2 stroke. 7 1/2 driven by Engine.

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

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

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Foundation



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 Receiver, Safety Valve and 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. One..... Total cubic capacity..... 15 Ft. 3..... Internal diameter..... 24 1/8"..... thickness..... Ends 26/30 Shell 15/32"..... Working pressure by Rules.....  
Seamless, welded or riveted longitudinal joint..... welded..... Material Steel..... Range of tensile strength..... Ends 26/30 Shell 28/32"..... Working pressure by Rules..... Actual..... 35.1

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..... 15th April, 1952..... 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..... 4.5.53.

#### SPARE GEAR.

Has the spare gear required by the Rules been supplied..... As per Rule Requirements.....  
State the principal additional spare gear supplied.....

The foregoing is a correct description, and the particulars of the Engine, as supplied, are as approved by the Torsional Vibration Characteristic Committee.  
MANLEY BROTHERS LIMITED..... Manufacturer.....

Dates of Survey while building.....  
During progress of work in shops - - - 1952. June 19th, July 7th, August 25th, October 17th, 21st, Dec. 5th, 1953. Jan. 1954.  
During erection on board vessel - - - April 7th, May 4th (2) May 26th.  
Total No. of visits..... 19.6.52. 18.2.53.

Dates of examination of principal parts—Cylinders 21.10.52. Covers 21.10.52. Pistons 26.5.53. Rods..... Connecting rods 17.9.53.  
Crank shaft 15.4.53. Flywheel shaft..... Thrust shaft..... 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 3554 51 LF.61 Flywheel shaft, material..... Identification mark.....

Thrust shaft, material..... Identification mark..... Intermediate shafts, material..... Identification marks.....

Tube shaft, material..... Identification mark..... Screw shaft, material..... Identification mark.....

Identification marks on air receivers.....

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..... If so, state name of vessel.....

General Remarks (State quality of workmanship, opinions as to class, Speed restrictions, &c. This Engine has been constructed

Special Survey, of tested materials and in accordance with the Secretary's letters, approved plans and Requirements of the Rules to this Society. The materials and workmanship are good and engine when tested in the Maker's Works, under full load conditions for 6 hours, followed by 10% load for 1 hour coupled direct to an hydraulic dynamometer showed satisfactory results. The Torsional Vibration Characteristics have been examined and will be approved for an engine Service Speed of 500 R.P.M. and the corresponding propeller speed of 250 R.P.M., provided a Notice Board be fitted at the control station stating that the engine is not to be operated continuously between 240 and 260 R.P.M., and the engine tachometer be marked accordingly. The engine is in my opinion suitable for installation in a vessel classed with this Society, for the purpose intended.

Attached hereto:- Extract Birmingham Report F.3888. Air Receiver Certs. will follow when available.

The amount of Entry Fee ... £ 37 : - :  
Special ... £ : : When applied for JUL 11 1953  
Donkey Boiler Fee... £ : : When received 19  
Travelling Expenses (if any) £ 4 : - :  
16 FEB 1954

Committee's Minute.....

Assigned..... See Liv Mach. Report

Engine Surveyor to Lloyd's Register of Shipping

(London 17/2/54)  
(restricted speed not imposed)