Rpt. 4b.

# REPORT ON OIL ENGINE MACHINERY.

No. 20601

Received at London Office 27 JAN 1942

Date of writing Report 26/1/1942 When handed in at Local Office 26/1/1942 Port of Leith

No. in Reg. Book. Survey held at Leith Date, First Survey Aug 6th 1941 Last Survey 14th Jan 1942 Number of Visits 19

on the ~~Single~~ Twin ~~Triple~~ Quadruple Screw MOTOR ~~vessel~~ TUG. "M.S.C. NEPTUNE". Tons Gross 131-0 Net 1[illegible]

Built at Leith By whom built Henry Robb Ld Yard No. 319 When built 1942

Engines made at Manchester By whom made Crossley Bros Ld Engines No 127906 127907 When made 1942.

Donkey Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓

Brake Horse Power 770 ✓ Owners Manchester Ship Canal Co Port belonging to Manchester.

Nom. Horse Power as per Rule 270 271 Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted Yes

Trade for which vessel is intended Towing purposes on the Manchester Ship Canal.

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**OIL ENGINES, &c.**—Type of Engines ✓ 2 or 4 stroke cycle ✓ Single or double acting ✓

Maximum pressure in cylinders ✓ Diameter of cylinders ✓ Length of stroke ✓ No. of cylinders ✓ No. of cranks ✓

Mean Indicated Pressure ✓

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge ✓ Is there a bearing between each crank ✓

Revolutions per minute ✓ Flywheel dia. ✓ Weight ✓ Means of ignition ✓ Kind of fuel used ✓

**Crank Shaft,** Solid forged / Semi built / All built dia. of journals as per Rule ✓ as fitted ✓ Crank pin dia. ✓ Crank Webs Mid. length breadth ✓ Mid. length thickness ✓ shrunk Thickness parallel to axis ✓ Thickness around eyehole ✓

**Flywheel Shaft,** diameter as per Rule ✓ as fitted ✓ **Intermediate Shafts,** diameter as per Rule Approved & as fitted 4½" ✓ **Thrust Shaft,** diameter at collars as per Rule ✓ as fitted ✓

**Tube Shaft,** diameter as per Rule as fitted **Screw Shaft,** diameter as per Rule Approved & as fitted 5 7/4" ✓ Is the tube / screw shaft fitted with a continuous liner No liner ✓

**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~~ Shaft made watertight in the propeller boss Yes ✓ 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 the tube shaft Yes. ✓ If so, state type Newark ✓ Length of Bearing in **Stern Bush** next to and supporting propeller 1'-10½" ✓

**Propeller,** dia. 6'-1½" Pitch 3'-5" to 2'-11·2" No. of blades 4 Material Cast Iron whether Moveable No Total Developed Surface 18'-4" sq. feet

**Method of reversing Engines** ✓ Is a governor or other arrangement fitted to prevent racing of the engine when ~~declutched~~ ✓ Means of lubrication ✓ Thickness of cylinder liners ✓ Are the cylinders fitted with safety valves ✓ Are the exhaust pipes and silencers water cooled or 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 Exhaust up funnel ✓

See Mech Rept 10720.

**Cooling Water Pumps,** No. one each engine ✓ Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes ✓

**Bilge Pumps** worked from the **Main Engines,** No. 1 Each Engine ✓ Diameter Capacity Stroke 3500 galls per hour Can one be overhauled while the other is at work Yes

**Pumps** connected to the **Main Bilge Line** No. and Size 1 off - Centrifugal Type / How driven Electric Motor. Capacity 20 tons per hour.

Is the cooling water led to the bilges No 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 1-Motor driven Centrifugal Capacity 20 tons per hour **Power Driven Lubricating Oil Pumps,** including Spare Pump, No. and size 2 each engine. Capacity 235 galls/hr each. ✓

Are two independent means arranged for circulating water through the **Oil Cooler** + Main Engs. Yes. ✓ **Suctions,** connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 1-2" dia aft. ✓ In Pump Room

In Holds, &c. Ford Compartment 1-2" dia. ✓

**Independent Power Pump Direct Suctions** to the Engine Room Bilges, No. and size 1-2" port, 1-2" Stard, led to pumps driven by Aux' Engines. ✓

Are all the Bilge Suction pipes in Holds ~~and Tunnel Well~~ fitted with strum-boxes Yes Are the Bilge Suctions 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 Yes

Are all **Sea Connections** fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Both.

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Overboard Discharges above or below the deep water line Above.

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate ✓

What pipes pass through the bunkers None How are they protected ✓

What pipes pass through the deep tanks None 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 Yes

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 Yes Is the Shaft Tunnel watertight None 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 ✓

See Mech Rept 10720.

**Main Air Compressors,** No. ✓ No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓

**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 See Mech Rept 10720

**Scavenging Air Pumps,** No. ✓ Diameter ✓ Stroke ✓ Driven by ✓

**Auxiliary Engines** crank shafts, diameter as per Rule ✓ as fitted ✓ No. 2. Position 1 Port + 1 Stard

Have the Auxiliary Engines been constructed under special survey ✓ Is a report sent herewith See Mech Repts 10674-75. Yes. ✓

*AIR RECEIVERS:*—Have they been made under survey ✓ State No. of Report or Certificate ✓

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 ✓ Is a drain fitted at the lowest part of each receiver ✓

**Injection Air Receivers,** No. ✓ Cubic capacity of each Internal diameter ✓ thickness ✓

Seamless, lap welded or riveted longitudinal joint See Mch Rept 10720 Material ✓ Range of tensile strength ✓ Working pressure by Rules ✓ Actual ✓

**Starting Air Receivers,** No. ✓ Total cubic capacity ✓ Internal diameter ✓ thickness ✓

Seamless, lap welded or riveted longitudinal joint ✓ Material ✓ Range of tensile strength ✓ Working pressure by Rules ✓ Actual ✓

*IS A DONKEY BOILER FITTED?* No ✓ 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 & Sterngear Yes Receivers ✓ Separate Fuel Tanks Yes
(If not, state date of approval)

Donkey Boilers ✓ General Pumping Arrangements With hull report Pumping Arrangements in Machinery Space Yes

Oil Fuel Burning Arrangements Yes

*SPARE GEAR.*

Has the spare gear required by the Rules been supplied Yes.

State the principal additional spare gear supplied ✓

*The foregoing is a correct description,*

*Manufacturer.*

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*Dates of Survey while building*

During progress of work in shops- - 1941.

During erection on board vessel- - - Aug 6-26. Sept 5-11. Oct 1·6·7·20·30. Nov 13.24.26. Dec 11.16.19. Jan 1942. 2.9.13 & 14.

Total No. of visits On board 19. In Shops. 13. Total 32.

*Dates of Examination of principal parts*—Cylinders ✓ Covers ✓ Pistons ✓ Rods ✓ Connecting rods ✓

Crank shaft ✓ Flywheel shaft ✓ Thrust shaft ✓ Intermediate shafts in place 6/10/41 Tube shaft ✓

Screw shafts in place 6/10/41 Propeller 6/10/41 Stern tubes 5th & 11th 9/41 Engine seatings 30/10/41 Engines holding down bolts 24/11/41

Completion of fitting sea connections 6/10/41 Completion of pumping arrangements 9/1/42 Engines tried under working conditions In dock 13/1/42

Crank shaft, Material ✓ Identification Mark ✓ Flywheel shaft, Material ✓ Identification Mark ✓ LLOYDS No 5595 4·6·41. HCM

Thrust shaft, Material ✓ Identification Mark ✓ Intermediate shafts, Material Steel Identification Marks LLOYDS No 5896 4-6-41 HCM.

Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material Steel. Identification Mark LLOYDS No 5593 4-6-41 HCM. LLOYDS No 5594 4-6-41 HCM.

Identification Marks on Air Receivers See Mch Rept No 10720.

Is the flash point of the oil to be used over 150° F. Yes

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with Yes

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo No 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 M.S.C. Mallard & Merlin.

*General Remarks* (State quality of workmanship, opinions as to class, &c.)

This Machinery - Mch Rept 10720 on the Main Engines and Mch Rept 10674/5 on the Aux Engines has been efficiently fitted on board, the materials & workmanship being sound & good. The Main & Auxiliary Machinery was tried in dock under full working conditions and found satisfactory in all respects. Manoeuvring tests were carried out and the capacity of the air receivers was found to be in excess of Rule requirements. The Auxiliary engines which drive the compressors can be started by hand.

In my opinion the Machinery of this vessel is eligible to be classed in the Register Book with the Notation of +LMC 1.42 and the records of Oil Engine : TSOG.

The amount of Entry Fee .. £ : :

Special 1/3 LMC ... £ 21 : 18 : 6

Donkey Boiler Fee ... £ : :

Travelling Expenses (if any) £ : :

When applied for, 26-1- 1942.

When received, 19

H. B. Murray.

*Engineer Surveyor to Lloyd's Register of Shipping.*

*Committee's Minute* WED. 4 FEB 1942

*Assigned* +LMC 1.42 oil Engs. O.G.

*(The Surveyors are requested not to write on or below the space for Committee's Minute.)*

*Certificate (if required) to be sent to*