

# REPORT ON OIL ENGINE MACHINERY.

No. 20027

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Date of writing Report 9<sup>th</sup> Feb<sup>y</sup> 1940 When handed in at Local Office 8<sup>th</sup> Feb<sup>y</sup> 1940 Port of Leith  
No. in Survey held at Leith Date, First Survey 11<sup>th</sup> Oct<sup>r</sup> 1939 Last Survey 6<sup>th</sup> Feb<sup>y</sup> 1940  
Reg. Book. Number of Visits 21

7627 on the Single Screw vessel MOTOR TUG "M. S. C. MALLARD" Tons Gross 131.0  
Twin Net Nil  
Triple  
Quadruple

Built at Leith By whom built Henry Robb Ltd Yard No. 294 When built 1940  
Engines made at Manchester By whom made Cressley Bros Ltd Engine No. 127900 When made 1940  
Donkey Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓  
Brake Horse Power 440 Owners The Manchester Ship Canal Co Port belonging to Manchester  
Nom. Horse Power as per Rule 242 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes  
Trade for which vessel is intended Towing Services in the Manchester Ship Canal

**L ENGINES, &c.**—Type of Engines 2 or 4 stroke cycle Single or double acting Single  
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, dia. of journals \_\_\_\_\_ as per Rule ✓ Crank pin dia. \_\_\_\_\_ Crank Webs \_\_\_\_\_ Mid. length breadth \_\_\_\_\_ Thickness parallel to axis \_\_\_\_\_  
\_\_\_\_\_ as fitted \_\_\_\_\_ Mid. length thickness \_\_\_\_\_ shrunk \_\_\_\_\_ Thickness around eyehole \_\_\_\_\_

Flywheel Shaft, diameter \_\_\_\_\_ as per Rule Approved Intermediate Shafts, diameter \_\_\_\_\_ as per Rule 4 1/2" Thrust Shaft, diameter at collars \_\_\_\_\_ as per Rule \_\_\_\_\_  
\_\_\_\_\_ as fitted \_\_\_\_\_ + as fitted \_\_\_\_\_ as fitted \_\_\_\_\_

Propeller Shaft, diameter \_\_\_\_\_ as per Rule Approved Screw Shaft, diameter \_\_\_\_\_ as per Rule 5 1/4" Is the lattice shaft fitted with a continuous liner No  
\_\_\_\_\_ as fitted \_\_\_\_\_ + as fitted \_\_\_\_\_ as fitted \_\_\_\_\_

Bronze Liners, thickness in way of bushes \_\_\_\_\_ as per Rule \_\_\_\_\_ Thickness between bushes \_\_\_\_\_ as per rule \_\_\_\_\_ Is the after end of the shaft liner made watertight in the \_\_\_\_\_  
\_\_\_\_\_ as fitted \_\_\_\_\_ as fitted \_\_\_\_\_ as fitted \_\_\_\_\_

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 \_\_\_\_\_  
If so, state type Newark Length of Bearing in Stern Bush next to and supporting propeller 1'-10 1/2"

Propeller, dia. 6'-0" Pitch 3'-7 1/4" No. of blades 4 Material Cast Iron whether Moveable No Total Developed Surface 12.0 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 see Mch. Rpt. N° 9804 Are the exhaust pipes and silencers water cooled or lagged with \_\_\_\_\_  
insulating 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

Boiling Water Pumps, No. one each engine Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes  
Large Pumps worked from the Main Engines, No. 1 each Eng Diameter Capacity Stroke 3500 galls/hr 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 elec. motor - capacity 20 tons/hr.

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 \_\_\_\_\_

Oil Pumps, No. and size 1 Motor driven Centrifugal. Capacity 20 tons/hr. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size two - each engine Capacity 235 galls/hr each  
Are two independent means arranged for circulating water through the Oil Cooler + Main Engines yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 1-2" aft. In Pump Room \_\_\_\_\_

Holds, &c. Jord Comp<sup>t</sup> 1-2" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-2" port, 1-2" starb, led to pumps driven by the Aux<sup>y</sup> Engines.  
Are all the Bilge Suction pipes in Holds and Turret Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces \_\_\_\_\_

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 \_\_\_\_\_

Do all pipes pass through the bunkers None How are they protected \_\_\_\_\_  
Do all 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 the vessel is a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork \_\_\_\_\_

Auxiliary Air Compressors, No. \_\_\_\_\_ No. of stages \_\_\_\_\_ Diameters \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_  
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Suctioning Air Pumps, No. \_\_\_\_\_ Diameter \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_  
Auxiliary Engines crank shafts, diameter \_\_\_\_\_ as per Rule \_\_\_\_\_ No. Two  
\_\_\_\_\_ as fitted \_\_\_\_\_ Position 1 Port. 1 Starb.



**AIR RECEIVERS:**—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 .....

**High Pressure Air Receivers, No.** ..... Cubic capacity of each ..... Internal diameter ..... thickness .....

Seamless, lap welded or riveted longitudinal joint ..... Material ..... *Mech. Rpt. No 9804* ..... Working pressure by Rules Actual .....

**Starting Air Receivers, No.** ..... *for particulars see Mech. Rpt. No 9804* ..... 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 & Stern gear *Yes* Receivers  Separate Fuel Tanks *Yes*

(If not, state date of approval) ..... *With hull report* ..... Pumping Arrangements in Machinery Space *Yes*

Donkey Boilers  General Pumping Arrangements ..... 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. ....

Dates of Survey while building { During progress of work in shops - - }  
 { During erection on board vessel - - - }  
 Total No. of visits *21*

1939 Oct 11. 24. 31. Nov 21. 28. Dec 4. 12. 21. 22. 26. 29. 1940 Jan 5. 9. 12. 18. 19. 22. 31 Feb. 2. 6.

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

Crank shaft ..... Flywheel shaft ..... Thrust shaft ..... Intermediate shafts ..... Tube shaft .....

Screw shafts *in place 12/12/39* Propellers *in place 12/12/39* Stern tubes *in place 28/11/39* Engine seatings *21-11-39* Engines holding down bolts *29-12-39*

Completion of fitting sea connections *4-12-39* Completion of pumping arrangements *24-1-40* Engines tried under working conditions *at sea 26-1*

Crank shaft, Material ..... Identification Mark ..... Flywheel shaft, Material ..... Identification Mark ..... *LLOYD'S No 4486-A 18-8-39*

Thrust shaft, Material ..... Identification Mark ..... Intermediate shafts, Material *Steel* ..... Identification Marks ..... *LLOYD'S No 4485 1-8-39*

Tube shaft, Material ..... Identification Mark ..... Screw shaft, Material *Steel* ..... Identification Mark .....

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 *No* ..... If so, state name of vessel

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

*This Machinery - Mech Rpt No 9804 on the Main Engines, + No 9805 on the Aux Engines, has been efficiently fitted on board, the materials & workmanship being sound & good. The Main & Aux Machinery was finally tried out at sea under full load & working conditions, & it was found satisfactory in all respects. Manoeuvring tests were carried out, & the capacity of the air receivers was found to be considerably in excess of Rule requirements. The Auxiliary Engines which drive the compressor 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 + I. M. C. 2-40, & the records of Oil Eng. T.S. O.G.*

The amount of Entry Fee .. £ : : When applied for, .....  
 Special  $\frac{1}{3}$  I. M. C. £ 21 : 18 : 6 } 8/21 1940.  
 Donkey Boiler Fee ... £ : : When received, .....  
 Travelling Expenses (if any) £ : : 4-3-1940

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

Committee's Minute .....  
 Assigned *+ Amk 2,40*  
*oil exp. 0.4*



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