

# REPORT ON OIL ENGINE MACHINERY.

No. 20601

27 JAN 1942

Received at London Office

Date of writing Report 26/1/42 When handed in at Local Office 26/1/42 Port of Leith  
 No. in Survey held at Leith Date, First Survey Aug 6<sup>th</sup> 1941 Last Survey 14<sup>th</sup> Jan 1942  
 Reg. Book. Number of Visits 19

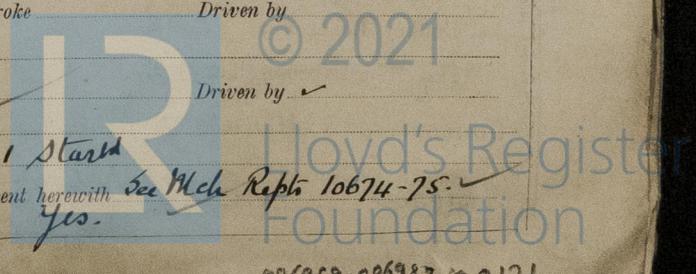
on the Single Twin Triple Quadruple Screw Motor TUG "M.S.C. NEPTUNE" Tons 131-0 Gross 112 Net  
 Built at Leith By whom built Henry Robb Ltd Yard No. 319 When built 1942  
 Engines made at Manchester By whom made Crossley Bros Ltd Engines No. 127906 127907 When made 1942  
 Donkey Boilers made at  By whom made  Boiler No.  When made   
 Brake Horse Power 440 Owners Manchester Ship Canal Co Port belonging to Manchester  
 Nom. Horse Power as per Rule 240 271 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.

**IL 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. Particulars Means of ignition  Kind of fuel used   
 Crank Shaft,  Solid forged  Semi built dia. of journals  as per Rule  as fitted  Crank pin dia.  Crank Webs  Mid. length breadth  Thickness parallel to axis   
 Flywheel Shaft, diameter  as per Rule  as fitted  Intermediate Shafts, diameter  as per Rule  as fitted  Thrust Shaft, diameter at collars  as per Rule  as fitted   
 Tube Shaft, diameter  as per Rule  as fitted  Screw Shaft, diameter  as per Rule  as fitted  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  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'-10 1/2"  
 Propeller, dia. 6'-1 1/2" 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 detached  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 up funnel  
 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 Engrs  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. 1-2" dia Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-2" port, 1-2" starb, led to pumps driven by Auxl 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   
 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   
 Scavenging Air Pumps, No.  Diameter  Stroke  Driven by   
 Auxiliary Engines crank shafts, diameter  as per Rule  as fitted  No. 2 Position 1 Port + 1 Starb  
 Have the Auxiliary Engines been constructed under special survey  Is a report sent herewith  Yes See Mch Repts 10674-75.



**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 *See Mch Rept 10720* Internal diameter ✓ thickness ✓  
 Seamless, lap welded or riveted longitudinal joint ✓ 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 & Stern gear ✓ Receivers ✓ Separate Fuel Tanks ✓  
 (If not, state date of approval) Donkey Boilers ✓ General Pumping Arrangements *With hull report* Pumping Arrangements in Machinery Space ✓  
 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-- 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 *in place* Flywheel shaft ✓ Thrust shaft ✓ Intermediate shafts *in place* Tube shaft ✓  
 Screw shaft *6/10/41* Propeller *6/10/41* Stern tube *3.5.11/9/41* 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 *On dock 13/1/42*  
 Crank shaft, Material ✓ Identification Mark ✓ Flywheel shaft, Material ✓ Identification Mark ✓  
 Thrust shaft, Material ✓ Identification Mark ✓ Intermediate shafts, Material *Steel* Identification Marks ✓  
 Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material *Steel* Identification Mark ✓  
 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.*

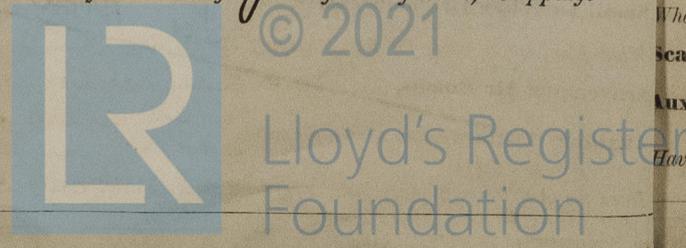
**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*This Machinery - Mch Rept 10720 on the Main Engines and Mch Rept 10674/5 on the Aux Engines has been efficiently fitted on board, the materials & workmanship being sound & good. The Main & Auxiliary Machinery was tried in 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: T.S.O.G.*

The amount of Entry Fee .. £ : : When applied for,  
 Special *1/3 LMC* .. £ 21 : 18 : 6 26-1-1942.  
 Donkey Boiler Fee ... £ : : When received,  
 Travelling Expenses (if any) £ : : 19

*L.B. Murray.*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *WED. 4 FEB 1942*

Assigned *+ LMC 1.42 Oil Eng. J.C.*



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