

REPORT ON OIL ENGINE MACHINERY.

No 10621.

Date of writing Report 6.8.1941 When handed in at Local Office 7/8/1941 Port of MANCHESTER.
 No. in Survey held at Reg. Book. KEIGHLEY Date, First Survey 31.1.41 Last Survey 23.7.1941
 on the ^{Single} ~~Triple~~ ~~Quadruple~~ Screw vessel "EMPIRE RIVER"
 Built at GAINSBOROUGH By whom built J.S. WATSON (GAINSBOROUGH) LTD Yard No. 1521. When built 1941
 Engines made at KEIGHLEY By whom made H. NIDDO & CO LTD Engine No. 4062 When made 1941
 Donkey Boilers made at - By whom made - Boiler No. - When made -
 Brake Horse Power 300. Owners Ministry of War Transport Port belonging to London.
 Nom. Horse Power as per Rule 138.140 Is Refrigerating Machinery fitted for cargo purposes - Is Electric Light fitted ☒.
 Trade for which vessel is intended COASTING VESSEL.

OIL ENGINES, &c. Type of Engines VERTICAL SOLID INJECTION. 2 or 4 stroke cycle 2. Single or double acting SINGLE
 Maximum pressure in cylinders 650 LBS ✓ Diameter of cylinders 11.5" Length of stroke 13.5" No. of cylinders 6 No. of cranks 6
 Mean Indicated Pressure 53.5 LBS/SQ IN. ✓ Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 16.75" ✓ Is there a bearing between each crank ☒.
 Revolutions per minute 330. ✓ Flywheel dia. 36.75" Weight 15.6 CWTs. Means of ignition COMPRESSION Kind of fuel used HEAVY OIL.
 Crank Shaft, { Solid forged as per Rule APPROVED dia. of journals as fitted 6.75" Crank pin dia. 6.75" Crank Webs Mid. length breadth 9" Mid. length thickness 3.75" Thickness parallel to axis SOLID Thickness around eye-hole
 Flywheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule APPROVED 4" Thrust Shaft, diameter at collars as per Rule APPROVED 4.75" as fitted
 Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule APPROVED 4 5/8" as fitted Is the tube screw shaft fitted with a continuous 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 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 the tube shaft ☒ If so, state type ROTATING RUBBER SLEEVE TYPE. Length of Bearing in Stern Bush next to and supporting propeller 19.5" ✓
 Propeller, dia. 59.5" Pitch 43" No. of blades 4 Material C.I. whether Moveable NO Total Developed Surface 9.6 sq. feet
 Method of reversing Engines DIRECT Is a governor or other arrangement fitted to prevent ☒
 FORCED. Thickness of cylinder liners 1 1/8" 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 -
 Cooling Water Pumps, No. ONE Is the sea suction provided with an efficient strainer which can be cleared within the vessel -
 Bilge Pumps worked from the Main Engines, No. ONE Diameter 4.25" Stroke 3" Can one be overhauled while the other is at work -
 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 Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 3. 1.75" DIA x 3" STROKE.
 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 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
 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. ONE No. of stages TWO Diameters 6" & 2 3/4" Stroke 3" Driven by MAIN ENGINE
 Auxiliary Air Compressors, No. ONE No. of stages ONE Diameters 4.5" Stroke 2 3/4" Driven by AUX. ENGINE.
 Small Auxiliary Air Compressors, No. - No. of stages - Diameters - Stroke - Driven by -
 What provision is made for first Charging the Air Receivers INDEPENDENT AIR COMPRESSOR.
 Scavenging Air Pumps, No. - Diameter - Stroke 3. Driven by -
 Auxiliary Engines crank shafts, diameter as per Rule APPROVED 2.25" as fitted Position -
 Have the Auxiliary Engines been constructed under special survey ☒ Is a report sent herewith MCH. RPT. 10525. 10526.

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 ☒ YES ✓
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, lap welded or riveted longitudinal joint - Material - Range of tensile strength - Working pressure by Rules
Starting Air Receivers, No. THREE Total cubic capacity 18.4 C.F.T. Internal diameter 27 1/2" thickness 2 - 1/4" by Rules
Seamless, lap welded or riveted longitudinal joint SEAMLESS Material STEEL Range of tensile strength 28-32 TONS Working pressure by Rules APPROVED
Actual 350 LBS. ✓

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 (If not, state date of approval) Receivers Separate Fuel Tanks -
Donkey Boilers - General Pumping Arrangements - Pumping Arrangements in Machinery Space -
Oil Fuel Burning Arrangements -
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.
For J. WIDDOCK & COMPANY LTD.
J. WIDDOCK & COMPANY LTD. Manufacturer.
DIRECTOR 1941. JAN 31. MAR. 7. 29. APRIL 25. MAY 12. JUN 23.
Dates of Survey while building { During progress of work in shops - - }
{ During erection on board vessel - - - }
Total No. of visits 6.
Dates of Examination of principal parts - Cylinders 31.1.41. Covers 25.4.41. Pistons 7.3.41. Rods - Connecting rods 29.3.41.
Crank shaft 29.3.41. Flywheel shaft - Thrust shaft 25.4.41. Intermediate shafts - Tube shaft -
Screw shaft - Propeller - Stern tube - Engine sealings - Engines 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 LLOYDS 51.14.101 Flywheel shaft, Material - Identification Mark -
Intermediate shafts, Material - Identification Mark LLOYDS 207.25.41 Intermediate shafts, Material - Identification Marks -
Tube shaft, Material - Identification Mark - Screw shaft, Material - Identification Mark -
Identification Marks on Air Receivers C.T.CO. C.T.CO. RUSTON
890450. W.P. 350 LBS. 890451. W.P. 350 LBS. 40.81.167. D.810.
LLOYDS TEST 1000 LBS. f.5.40. LT. LLOYDS TEST 1000 LBS. f.5.40. LT. LLOYDS TEST 1000 LBS. f.6.40. LT.
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 -
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 ☒ YES ✓ If so, state name of vessel WATSONS YARD NO. 1520.

General Remarks (State quality of workmanship, opinions as to class, &c.)
THIS ENGINE HAS BEEN CONSTRUCTED UNDER SPECIAL SURVEY OF TESTED MATERIALS AND IS IN ACCORDANCE WITH THE SECRETARY'S LETTERS, APPROVED PLANS AND RULE REQUIREMENTS. THE MATERIALS AND WORKMANSHIP ARE OF A GOOD QUALITY AND THE ENGINE WHEN TESTED IN SHOP UNDER FULL LOAD CONDITIONS SHOWN SATISFACTORY RESULTS. IN MY OPINION THIS ENGINE IS SUITABLE FOR THE PURPOSE INTENDED AND WHEN INSTALLED ON BOARD AND SATISFACTORILY REPORTED UPON BY THE SOCIETY'S SURVEYORS WILL BE ELIGIBLE TO HAVE THE NOTATION OF + LLOYDS MACHINERY CERTIFICATE (WITH DATE)

The amount of Entry Fee .. £ 2 : 0 : 0 When applied for, 28.5.1941
Special +25% ... £ 28 : 15 : 0
Donkey Boiler Fee ... £ : : : When received, 1.7.1941
Travelling Expenses (if any) £ 4 : 0 : 0

Committee's Minute TUE. 13 JAN 1942
Assigned See Gms. for machinery
Lloyd's Register Foundation