

REPORT ON OIL ENGINE MACHINERY.

No 10,440.

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Date of writing Report 31st Mar. 1941 When handed in at Local Office 5th April, 1941 Port of Manchester
No. in Survey held at Manchester Date, First Survey 1st June, 1940 Last Survey 27th Mar. 1941
Reg. Book. 88050 on the Single Triple Quadruple Screw vessel M.V. "EMPIRE CRAG" Tons Gross 332 Net 153
Built at Faversham By whom built J. Pollock, Sons & Co. Ltd. Yard No. 1777 When built 1941
Engines made at Manchester By whom made Crossley Bros. Ltd. Engine No. 125886 When made 1941
Donkey Boilers made at Manchester By whom made Crossley Bros. Ltd. Boiler No. - When made -
Brake Horse Power 330 Owners Ministry of Shipping Port belonging to London
Nom. Horse Power as per Rule 116 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
Trade for which vessel is intended Coasting

OIL ENGINES, &c. Type of Engines Direct injection heavy oil engine 2 or 4 stroke cycle 2 Single or double acting single
Maximum pressure in cylinders 750 lbs/sq. in. Diameter of cylinders 10.5" Length of stroke 13.5" No. of cylinders 6 No. of cranks 6
Mean Indicated Pressure 76 lbs/sq. in. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 14 11/16" Is there a bearing between each crank yes
Revolutions per minute 300 Flywheel dia. 37 1/2" Weight 2166 lbs Means of ignition Compression Kind of fuel used heavy oil
Crank Shaft, Solid forged dia. of journals as per Rule APPROVED Crank pin dia. 7 1/4" Crank Webs Mid. length breadth 9 1/4" Thickness parallel to axis shrunk
as fitted 7 1/2" Mid. length thickness 3 23/32" Thickness around eyehole shrunk
Flywheel Shaft, diameter as per Rule APPROVED Intermediate Shafts, diameter as per Rule Thrust Shaft, diameter at collars as per Rule APPROVED
as fitted FLYWHEEL MOUNTED ON CRANKSHAFT COUPLING as fitted 4 3/4"
Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule Is the tube as fitted shaft fitted with a continuous liner as fitted
Bronze Liners, thickness in way of bushes as per Rule Thickness between bushes as per Rule Is the after end of the liner made watertight in the propeller boss as fitted
If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner as fitted
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 as fitted
If two liners are fitted, is the shaft lapped or protected between the liners as fitted Is an approved Oil Gland or other appliance fitted at the after end of the tube as fitted
shaft as fitted If so, state type as fitted Length of Bearing in Stern Bush next to and supporting propeller as fitted
Propeller, dia. as fitted Pitch as fitted No. of blades as fitted Material as fitted whether Moreable as fitted Total Developed Surface as fitted sq. feet as fitted
Method of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when decoupled yes Means of lubrication forced
Thickness of cylinder liners 7/8" Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material WATER COOLED the exhaust is below the waterline, what means are arranged to prevent water from being syphoned back to the engine yes
Cooling Water Pumps, No. 1 on M.E. 4 1/4" x 3" STROKE 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 Diameter 4 1/4" Stroke 3" Bilge & Cooling Water Pumps INTERCHANGEABLE yes
Pumps connected to the Main Bilge Line { No. and Size as fitted How driven as fitted
Is the cooling water led to the bilges as fitted If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements as fitted
Ballast Pumps, No. and size as fitted Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 IN SERIES ON MAIN ENGINE 1 3/4" x 1 3/8" x 2" STROKE
Are two independent means arranged for circulating water through the Oil Cooler as fitted Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces as fitted In Pump Room as fitted
In Holds, &c. as fitted Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size as fitted
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes as fitted 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 as fitted
Are all Sea Connections fitted direct on the skin of the ship as fitted Are they fitted with Valves or Cocks as fitted
Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates as fitted Are the Overboard Discharges above or below the deep water line as fitted
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel as fitted Are the Blow Off Cocks fitted with a spigot and brass covering plate as fitted
What pipes pass through the bunkers as fitted How are they protected as fitted
What pipes pass through the deep tanks as fitted Have they been tested as per Rule as fitted
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times as fitted
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 as fitted Is the Shaft Tunnel watertight as fitted Is it fitted with a watertight door as fitted worked from as fitted
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork as fitted
Main Air Compressors, No. 1 No. of stages 2 Diameters 5 3/4" & 2 1/2" Stroke 4" Driven by Main Engine
Auxiliary Air Compressors, No. as fitted No. of stages as fitted Diameters as fitted Stroke as fitted Driven by as fitted
Small Auxiliary Air Compressors, No. as fitted No. of stages as fitted Diameters as fitted Stroke as fitted Driven by as fitted
What provision is made for first Charging the Air Receivers as fitted
Scavenging Air Pumps, No. 2 (tandem) Diameter 2 0 1/2" Stroke 9 1/4" Driven by Main Engine
Auxiliary Engines crank shafts, diameter as per Rule Position as fitted
Have the Auxiliary Engines been constructed under special survey as fitted Is a report sent herewith as fitted

AIR RECEIVERS: - Have they been made under survey *yes* ✓ State No. of Report or Certificate *Nottingham C5.2*
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 *-*
Starting Air Receivers, No. *Two* Total cubic capacity *30 cu ft* Internal diameter *2' 0 1/8"* thickness *3/8"*
Seamless, lap welded or riveted longitudinal joint *End portions seamless, centre shop built welded with riveted butt strap.* Material *S.P. Steel* Range of tensile strength *End plates 26-30 tons* Working pressure *by Rules 350 lbs* Actual *350*

IS A DONKEY BOILER FITTED? *yes* ✓ If so, is a report now forwarded? *yes* ✓

Is the donkey boiler intended to be used for domestic purposes only *-*
PLANS. Are approved plans forwarded herewith for Shafting *Lon. 2-4-41* Receivers *Liverpool 12-11-40* Separate Fuel Tanks *-*
(If not, state date of approval)

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, for vessels engaged on short voyages.* ✓
State the principal additional spare gear supplied *One cylinder cover complete with valves, one water pump complete, additional valves for scavange pump.*

The foregoing is a correct description.
CROSSLEY BROTHERS Manufacturer.

Dates of Survey while building
During progress of work in shops - *1-6-40, 17-7-40, 11-9-40, 2-10-40, 14-11-40, 18-12-40, 2-1-41, 14-3-41, 19-3-41, 24-3-41, 27-3-41*
During erection on board vessel - *-*
Total No. of visits *-*

Dates of Examination of principal parts - Cylinders *18-12-40* Covers *2-1-41* Pistons *18-12-40* Rods *-* Connecting rods *17-7-40, 11-9-40*
Crank shaft *14-11-40* Flywheel shaft *-* Thrust shaft *19-3-41* Intermediate shafts *-* Tube shaft *-*
Screw shaft *-* Propeller *-* Stern tube *-* Engine seatings *-* Engines holding down bolts *-*
Completion of fitting sea connections *-* Completion of pumping arrangements *-* Engines tried under working conditions *19-3-41*
Crank shaft, Material *S.P. Steel* Identification Mark *LLOYD'S 1208* Flywheel shaft, Material *-* Identification Mark *-*
Thrust shaft, Material *-* Identification Mark *LLOYD'S 1133* Intermediate shafts, Material *-* Identification Marks *-*
Tube shaft, Material *-* Identification Mark *-* Screw shaft, Material *-* Identification Mark *-*
Identification Marks on Air Receivers *E. 1882, LLOYD'S TEST 700 LBS, W.P. 350 LBS, J.N.B. 15-10-40*
E. 1884, LLOYD'S TEST 700 LBS, W.P. 350 LBS, J.N.B. 17-10-40

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* ✓
Description of fire extinguishing apparatus fitted *-*
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *yes* ✓ If so, have the requirements of the Rules been complied with *yes* ✓
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 *Pollock's Yard No 1776 See Inch Rpt 1016*

General Remarks (State quality of workmanship, opinions as to class, &c.) *This engine has been constructed under Special Survey, of tested materials and in accordance with the Secretary's letters, approved plans and Rule requirements. The materials and workmanship are good and the engine, when tested in the shop under full load conditions showed satisfactory results. In the opinion of the undersigned this engine is suitable for the purpose intended and when satisfactorily installed on board and reported by the Society's Surveyors will be eligible to have the notation of LLOYD'S MACHINERY CERTIFICATE (with date.)*
This engine has been fitted on board under survey & run under full load conditions with satisfactory results.
W. J. Ferguson

The amount of Entry Fee .. £ 3 : - : When applied for, *31st Mar. 1941*
2/3 Special + 25.2 ... £ 24 : - :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ 1 : 5 :
Committee's Minute
Assigned
See Lon. J.C. 109702
FRI. 11 JUL 1941
Lloyd's Register Foundation