

# REPORT ON OIL ENGINE MACHINERY.

No 10,440.

Received at London Office

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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 Screw vessel M.V. "EMPIRE CRAG" Number of Visits 11.

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 - By whom made - 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

Tons Gross 332  
 Net 153

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 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 shaft fitted with a continuous liner no  
 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 liner made watertight in the  
 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 yes  
 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 yes

If two liners are fitted, is the shaft lapped or protected between the liners yes Is an approved Oil Gland or other appliance fitted at the after end of the tube  
 shaft yes If so, state type Oil Gland Length of Bearing in Stern Bush next to and supporting propeller yes

Propeller, dia. yes Pitch yes No. of blades yes Material yes whether Moveable yes Total Developed Surface yes sq. feet

Method of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when disengaged 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 Can one be overhauled while the other is at work yes

Pumps connected to the Main Bilge Line { No. and Size -  
 How driven -

Is the cooling water led to the bilges yes If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping  
 arrangements yes

Ballast Pumps, No. and size - Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 IN SERIES ON MAIN ENGINE 1 3/4" & 1 3/8" x 2" STROKE

Are two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge  
 Pumps, No. and size:—In Machinery Spaces yes In Pump Room yes

In Holds, &c. yes Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size yes

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 yes

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 yes

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 yes

What pipes pass through the bunkers yes How are they protected yes

What pipes pass through the deep tanks yes Have they been tested as per Rule yes

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 yes Is it fitted with a watertight door yes worked from yes

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork yes

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. yes No. of stages yes Diameters yes Stroke yes Driven by yes

Small Auxiliary Air Compressors, No. yes No. of stages yes Diameters yes Stroke yes Driven by yes

What provision is made for first Charging the Air Receivers yes

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 yes Is a report sent herewith yes



**AIR RECEIVERS:** — Have they been made under survey? *yes* ✓ State No. of Report or Certificate *Nottingham C5, &*  
 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" & 1 5/32"*  
 Seamless, lap welded or riveted longitudinal joint *butt-welded* Material *S.P. Steel* Range of tensile strength *26-30 tons* Working pressure *350 lbs*  
*with riveted butt strap.*

**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? *no*  
**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. Angol St.* Identification Mark *LLOYD'S 1208* Flywheel shaft, Material *—* Identification Mark *—*  
 Thrust shaft, Material *— do —* Identification Mark *W.S.P. 14-11-40* 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? *yes* ✓

Is this machinery duplicate of a previous case? *yes* ✓ If so, state name of vessel *Pollock's Yard No 1776 See Mech 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.*

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 : When received, *19*

*W.J. Ferguson*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 11 JUL 1941*  
 Assigned *See Lon. J.C. 109702*

