

# REPORT ON OIL ENGINE MACHINERY.

No 10,540  
6 JUN 1941

Received at London Office

Date of writing Report 22nd May 1941 When handed in at Local Office 31st May 1941 Port of Manchester  
 No. in Survey held at Manchester Date, First Survey 11-6-40 Last Survey 22-5-41 19  
 Reg. Book. 15 Number of Visits 15  
 Single ✓ Twin ✓ Triple ✓ Quadruple ✓ m/s Empire Isle Tons Gross 150 Net 100  
 Built at Hull By whom built Denny Scott Ltd. Yard No. 416 When built 1941  
 Engines made at Manchester By whom made Crosby Bros. Engine No. 121905 When made 1941  
 Donkey Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓  
 Brake Horse Power 385 Owners ✓ Port belonging to ✓  
 Nom. Horse Power as per Rule 135 Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted ✓  
 Trade for which vessel is intended Trade in Singapore Ocean

## 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 800 lbs<sup>0</sup> Diameter of cylinders 10 1/2" Length of stroke 13 1/2" No. of cylinders 7 No. of cranks 7  
 Mean Indicated Pressure 76 lbs<sup>0</sup>  
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 14 1/16" 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 ✓  
 Mid. length thickness 3 23/32" shrunk Thickness around eye-hole ✓  
 Flywheel Shaft, diameter as per Rule FLYWHEEL MOUNTED ON CRANKSHAFT COUPLING Intermediate Shafts, diameter as per Rule Thrust Shaft, diameter at collars as per Rule APPROVED  
 as fitted 5 1/4"

Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule Is the tube shaft fitted with a continuous liner ✓  
 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 propeller boss ✓  
 as fitted ✓ as fitted ✓ 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 ✓ Length of Bearing in Stern Bush next to and supporting propeller ✓

Propeller, dia. ✓ Pitch ✓ No. of blades ✓ Material ✓ whether Moveable ✓ Total Developed Surface ✓ sq. feet ✓  
 Method of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when detached 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 of 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 ON M.E. 5" Dia x 3" Stroke 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 5" Stroke 3" Can one be overhauled while the other is at work BILGE & COOLING WATER PUMPS INTERCHANGEABLE yes

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 TWO IN SERIES ON MAIN ENGINES 2 3/16 & 1 3/4" dia. x 2" 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 2 Diameters 5 3/4", 2 1/2" Stroke 4" Driven by Main Engine  
 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. 3 (in line vertically) Diameter 20 1/2" Stroke 7 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 ✓ Is a report sent herewith ✓



**AIR RECEIVERS:** - Have they been made under survey *yes* Slate 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.** *2* Cubic capacity of each *30 cu. ft.* Internal diameter *2' 0 1/8"* thickness *3/8" & 15/32"*  
 Seamless, lap welded or riveted longitudinal joint *butt welded with riveted straps.* Material *S.M. Steel* Range of tensile strength *Ends 26-30 tons* Working pressure *Actual 350 lbs/sq. in.*  
**Starting Air Receivers, No.** *2* Total cubic capacity *30 cu. ft.* Internal diameter *2' 0 1/8"* thickness *3/8" & 15/32"*  
 Seamless, lap welded or riveted longitudinal joint *butt welded with riveted straps.* Material *S.M. Steel* Range of tensile strength *Actual 28-32* Working pressure *by Rules 350 lbs/sq. in. Actual 350 lbs/sq. in.*

**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 *2-4-41* Receivers *Lawford 12-11-40 for Pollack's 1776-7* Separate Fuel Tanks *Liv. 15-10-40*  
 Donkey Boilers *yes* General Pumping Arrangements *yes* Pumping Arrangements in Machinery Space *yes*  
 Oil Fuel Burning Arrangements *yes*

**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 *minor items only*

The foregoing is a correct description  
**CROSSLEY BROTHERS LIMITED,**  
*Agents*

Manufacturer.

Dates of Survey while building  
 During progress of work in shops - *11-6-40, 17-7-40, 10-9-40, 11-9-40, 9-1-41, 7-2-41, 10-3-41, 19-3-41, 27-3-41, 7-4-41, 2-5-41, 5-5-41, 6-5-41, 20-5-41, 22-5-41*  
 During erection on board vessel - *11-9-40*  
 Total No. of visits *1*

Dates of Examination of principal parts - Cylinders *19-3-41* Covers *10-3-41, 19-3-41* Pistons *5-5-41* Rods *yes* Connecting rods *11-6-40, 17-7-40, 11-9-40*  
 Crank shaft *7-2-41* Flywheel shaft *yes* Thrust shaft *5-5-41* Intermediate shafts *yes* Tube shaft *yes*  
 Screw shaft *yes* Propeller *yes* Stern tube *yes* Engine seatings *yes* Engines holding down bolts *yes*  
 Completion of fitting sea connections *yes* Completion of pumping arrangements *yes* Engines tried under working conditions *2-5-41*  
 Crank shaft, Material *O.H. Ingot St.* Identification Mark *1323 W.T.M. 9-1-41* Flywheel shaft, Material *yes* Identification Mark *yes*  
 Thrust shaft, Material *O.H. Ingot St.* Identification Mark *1341 W.J.P. 5-5-41* Intermediate shafts, Material *yes* Identification Marks *yes*  
 Tube shaft, Material *yes* Identification Mark *yes* Screw shaft, Material *yes* Identification Mark *yes*

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 *yes*  
 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 *no* If so, state name of vessel *no*

**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 the requirements of the Rules. The materials and workmanship are good and the engine was found to be satisfactory when tested in the shop under full load conditions. This engine is suitable in my opinion for its intended service and when satisfactorily installed on board and reported will be eligible to receive the notation \* L.M.C. (with date.)*

The amount of Entry Fee ... £ *3 : 0* : When applied for, *31st May 1941*  
 1/3 Special + 25% ... £ *28 : 2* :  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ *18/-* : 19

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

Committee's Minute

Assigned

FRI. 29 AUG 1941

*See Hul. J.E. 51291*



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