

# REPORT ON OIL ENGINE MACHINERY.

No 10998

Received at London Office 18 MAY 1942

Date of writing Report **11-5-42** when handed in at Local office in Port of **Manchester**  
 No. in Survey held at **Openshaw, Manchester** Date, First Survey **4-2-42** Last Survey **13-4-1942**  
 Reg. Book. **6262** on the **Single** Screw vessel **1/4" EMPIRE REYNARD** Tons <sup>Gross</sup> **321**  
**Triple**  
**Quadruple**  
 Built at **Lowestoft** By whom built **Richard Ironworks** Yard No. **301** When built **1942**  
 Engines made at **Openshaw, Manchester** By whom made **Crossley Bros.** Engine No. **129734** When made **1942**  
 Monkey Boilers made at  By whom made   
 Brake Horse Power **330** Owners **Ministry of War Transport** Port belonging to **Lowestoft**  
 Indicated Horse Power as per Rule **116** Is Refrigerating Machinery fitted for cargo purposes  Is Electric Light fitted   
 Trade for which vessel is intended

**2** **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 **100 lb/sq. inch** Diameter of cylinders **10 1/2"** Length of stroke **13 1/2"** No. of cylinders **6** No. of cranks **6**  
 Mean Indicated Pressure **76 lb/sq. inch**  
 Distance 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 lb** Means of ignition **Compression** Kind of fuel used **heavy oil**  
 Crank Shaft,  Solid forged  Semi built  All built dia. of journals **7 1/2"** Crank pin dia. **7 1/4"** Crank Webs Mid. length breadth **9 1/4"** Thickness parallel to axis   
 as fitted **7 1/2"** Mid. length thickness **3 23/32"** Thickness around eye-hole   
 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   
 Main 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

**4** **Liner 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   
 If so, state type  Length of Bearing in Stern Bush next to and supporting propeller

**4** **Propeller**, dia. **Direct** Pitch **7/8"** No. of blades **3** Material **Cast Iron** whether Moveable  Total Developed Surface **110** sq. feet  
 Method of reversing Engines **Direct** Is a governor or other arrangement fitted to prevent racing of the engine  Means of lubrication **oil**  
 Thickness of cylinder liners **3/8"** Are the cylinders fitted with safety valves **yes** Are the exhaust pipes and silencers water cooled or lagged with  
 conducting material **conducting manifold water cooled.** If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

**4** **Bilge Water Pumps**, No. **One** M.E. **4 1/4" x 3" stroke** Is the sea suction provided with an efficient strainer which can be cleared without the vessel  
 being under way  Can one be overhauled while the other is at work   
**4** **Bilge Pumps** worked from the Main Engines, No. **One** Diameter **4 1/4"** Stroke **3"** **Bilge pumps interchangeable**  
**4** **Pumps** connected to the Main Bilge Line { No. and Size  How driven

**4** **Water** 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   
**4** **Oil** Pumps, No. and size  **Power Driven Lubricating Oil Pumps**, including Spare Pump, No. and size **Two in series on M.E. 1 3/4" x 1 3/8" 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

**4** **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  
 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   
 How are they protected   
 Are pipes pass through the deep tanks  Have they been tested as per Rule

**4** **Access** 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

**4** **Wood** vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork   
**4** **Air** Compressors, No. **One** No. of stages **2** Diameters **5 3/4" + 2 1/2"** Stroke **4"** Driven by **Main engine**  
**4** **Auxiliary** Air Compressors, No.  No. of stages  Diameters  Stroke  Driven by   
**4** **Auxiliary** Air Compressors, No.  No. of stages  Diameters  Stroke  Driven by

**4** **Provision** is made for first Charging the Air Receivers   
**4** **Refrigerating** Air Pumps, No. **Two (tender)** Diameter **20 1/2"** Stroke **9 1/4"** Driven by **Main engine**  
**4** **Auxiliary** Engines crank shafts, diameter as per Rule  as fitted  No. **One** Position

**4** **BEING** the Auxiliary Engines **BEING** constructed under special survey  **yes** Is a report sent herewith  **Report follows**



AIR RECEIVERS: - Have they been made under survey *Yes.* State No. of Report or Certificate *Nottingham C 191 + C 121*

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.  Total cubic capacity *30 cub. ft.* Internal diameter *2'-0 1/8"* thickness *3/8", 15/32"*  
*End sections seam less. Centre stroke butt welded with riveted shop* Material *S.M. steel* Range of tensile strength *Ends 26-30 tons/in<sup>2</sup> Cent- 28-32 1/2* Working pressure *by Rules 350 lb/in<sup>2</sup> Actual 350 lb/in<sup>2</sup>*

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 *15-1-42* Receivers *15-1-42* Separate Fuel Tanks

Donkey Boilers  General Pumping Arrangements  Pumping Arrangements in Machinery Space   
Oil Fuel Burning Arrangements

Has the spare gear required by the Rules been supplied *Yes.* SPARE GEAR.  
State the principal additional spare gear supplied

The foregoing is a correct description. *CROSSLEY BROTHERS LIMITED* Manufacturer.

Dates of Survey while building: During progress of work in shops - - *4-2-42, 2-3-42, 24-2-42, 7-3-42, 1-4-42, 10-4-42, 13-4-42.*  
During erection on board vessel - - -  
Total No. of visits

Dates of Examination of principal parts - Cylinders *13-4-42* Covers *13-4-42* Pistons *13-4-42* Rods  Connecting rods *24-2-42*  
Crank shaft *4-2-42* Flywheel shaft  Thrust shaft *13-4-42* 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 *Bench trials 10-4-42*  
Crank shaft, Material *S.M. Steel* Identification Mark *N<sup>o</sup> 1398 WTM 2-1-42* Flywheel shaft, Material  Identification Mark   
Thrust shaft, Material *S.M. Steel* Identification Mark *N<sup>o</sup> 1134 WTM 13-4-42* Intermediate shafts, Material  Identification Marks   
Tube shaft, Material  Identification Mark  Screw shaft, Material  Identification Mark   
Identification Marks on Air Receivers *E 1982 LLOYD'S TEST 700 LBS. W.P. 350 LBS. J.N.B. 26-12-40* *E 2048 LLOYD'S TEST 700 LBS. W.P. 350 LBS. J.N.B. 13-2-41.*

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 *Richard's Ironwork MOS 292.*

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 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 and reported upon will be eligible to receive the notation of LMC (with date).*

The amount of Entry Fee .. £ 3 : - : When applied for,  
*3/4 + 25% Special* ... .. £ 26 : 12 : | *15-5-42*  
Donkey Boiler Fee ... .. £ : : When received,  
Travelling Expenses (if any) £ 1 : 5 : |

Committee's Minute *FRI. 23 OCT 1942*  
Assigned *See Fe machy rpl*

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

