

REPORT ON OIL ENGINE MACHINERY.

No 11411

Received at London Office

10 AUG 1943

Date of writing Report **19.3. 19 43** when handed in at Local Office **19.3. 19 43** Port of **MANCHESTER.**

No. in Survey held at **OPENSHAW** Date, First Survey **13.10.42.** Last Survey **23.12. 19 42.**
 Reg. Book. **OPENSHAW** Number of Visits **5**

on the **Single** Screw vessel **MOTOR COLLIER "EMPIRE LAIRD"** **E. LAIRD** Tons Gross **5** Net **5**

Built at **THORNE** By whom built **Richard Dunstan Ltd.** T.393/4/ Yard No. **5/6.** When built **1943**

Engines made at **OPENSHAW.** By whom made **Crossley Bros. Ltd.** Engine No. **124216** When made **1943.**

Donkey Boilers made at By whom made Boiler No. When made

Brake Horse Power **275** Owners Port belonging to

Nom. Horse Power as per Rule **97** Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

Trade for which vessel is intended

OIL ENGINES, &c.—Type of Engines **Vertical Solid Injection Heavy Oil.** 2 or 4 stroke cycle **2** Single or double acting **Single.**

Maximum pressure in cylinders **800 lbs/sq"** Diameter of cylinders **10½"** Length of stroke **13½"** No. of cylinders **5** No. of cranks **5**

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. **37½"** Weight **2166 lbs.** Means of ignition **Compression** Kind of fuel used **Diesel Oil.**

Crank Shaft, **Solid forged** dia. of journals as per Rule **Approved.** as fitted **7½"** Crank pin dia. **7¼"** Crank Webs Mid. length breadth **9¼"** Thickness parallel to axis **3.23/32"** Mid. length thickness **3.23/32"** Thickness around eyehole

Flywheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule **Approved.** as fitted **4½"** Thrust Shaft, diameter at collars as per Rule **Approved.** as fitted **4½"**

Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule **Approved.** as fitted **5¼" & 5½"** Is the **screw** shaft fitted with a continuous liner **No Liners.**

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 **Yes** 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 **Yes.** If so, state type **Newark** Length of Bearing in Stern Bush next to and supporting propeller **2½"**

Propeller, dia. **62"** Pitch **46"** No. of blades **—** Material **—** whether Moveable **—** Total Developed Surface **—** sq. feet

Method of reversing Engines **Compressed Air** a governor or other arrangement fitted to prevent racing of the engine when declutched **Yes** Means of lubrication **Forced** Thickness of cylinder liners **7/8" & 1"** Are the cylinders fitted with safety valves **Yes** 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

Exhaust Manifold water cooled. **One on** Cooling Water Pumps, No. **M.E. 4½" 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 **4½"** Stroke **3"** Bilge & cooling water pumps interchangeable **Yes.** 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 **Two in series on M.E. 1½" & 1½" 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 **Two** Diameters **5½" & 2½"** Stroke **4"** Driven by **Main Engine.**

Auxiliary Air Compressors, No. **—** No. of stages **—** Diameters **—** Stroke **—** Driven by **—**

Small Auxiliary Air Compressors, No. **One on Main Engine.** No. of stages **—** Diameters **—** Stroke **—** Driven by **Main Engine.**

What provision is made for first Charging the Air Receivers **—**

Scavenging Air Pumps, No. **One** Diameter **20½"** Stroke **7½"** Driven by **Main Engine.**

Auxiliary Engines crank shafts, diameter as per Rule as fitted Position

Have the Auxiliary Engines been constructed under special survey **—** Is a report sent herewith **See Manchester Rpt. No.**

AIR RECEIVERS:— Have they been made under survey **Yes.** State No. of Report or Certificate **Nottingham C.373 & C.**
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. Two Total cubic capacity **30 Cu.Ft.** Internal diameter **24 1/8"** thickness **15/32" & 1/8"**
circum: **Riveted & Welded.** Material **OH Steel.** Range of tensile strength **26/30 tons/sq"** Working pressure by Rules Actual **350 lbs/sq"**
Seamless, lap welded or riveted ~~longitudinal~~ joint **Welded.** Material **OH Steel.** Range of tensile strength **26/30 tons/sq"** Working pressure by Rules Actual **350 lbs/sq"**
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 **25.6.42.** Receivers **25.6.42.** 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 **AS PER RULE REQUIREMENTS.**

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 - 13.10.42, 18.10.42, 6.11.42, 7.12.42, 23.12.42.
During erection on board vessel - - -
Total No. of visits **Five.**

Dates of Examination of principal parts—Cylinders **6.11.42.** Covers **6.11.42.** Pistons Rods - Connecting rods **13.10.42.**
Crank shaft **18.10.42.** Flywheel shaft - Thrust shaft **7.12.42.** 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 **7.12.42.**
Crank shaft, Material **S.M.Steel.** Identification Mark **814. 18.10.42** wheel shaft, Material - Identification Mark -
Thrust shaft, Material **SM Steel.** Identification Mark **1883.7.12.42** intermediate shafts, Material - Identification Marks -
Tube shaft, Material - Identification Mark - Screw shaft, Material - Identification Mark -
Identification Marks on Air Receivers **E.2225 and E.2047 LLOYD'S TEST 700 lbs. W.P. 350 lbs.**

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 - If so, state name of vessel

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 LETTER, APPROVED PLANS AND RULE REQUIREMENTS. THE MATERIALS AND WORKMANSHIP ARE GOOD, AND THE ENGINE WHEN TESTED IN THE SHOP UNDER FULL LOAD CONDITIONS GAVE SATISFACTORY RESULTS. THIS ENGINE IS SUITABLE, IN MY OPINION, FOR ITS INTENDED SERVICE, AND WHEN SATISFACTORILY INSTALLED AND REPORTED ON, WILL BE ELIGIBLE TO RECEIVE THE NOTATION OF L.M.C. (WITH DATE).**

The amount of Entry Fee .. £ **3** : **0** : When applied for,
Special £ **20** : **5** : **20-3** 1943
Donkey Boiler Fee £ : : When received, 19
Travelling Expenses (if any) £ **1** : **0** : 19

Committee's Minute

TUES. 24 AUG 1943

Assigned

24 minutes
on 24.8.43 Rpt. 52094

S. Newton
Engineer Surveyor to Lloyd's Register of Shipping.



Lloyd's Register
Foundation