

REPORT ON OIL ENGINE MACHINERY.

LIVERPOOL F.E. Report No. 118060

No. 13.

11 APR 1942

16 JUL 1942

Received at London Office

Date of writing Report **25-3-42** When handed in at Local Office **9-4-42** Port of **LEEDS**

No. in Survey held at **Keighley** Date, First Survey **9-10-41** Last Survey **17-3-1942**

Reg. Book. **Single** on the **Triple** Screw vessel **"EMPIRE LILY"** Tons ^{Gross} _{Net}

Built at **Northwich** By whom built **I. Pimblott Sons & Co. Ltd.** Yard No. **642** When built **1942**

Engines made at **Keighley** By whom made **H. Widdop & Co. Ltd.** Engine No. **4141** When made **1942**

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

Brake Horse Power **300** Owners **-** Port belonging to **-**

Nom. Horse Power as per Rule **139** Is Refrigerating Machinery fitted for cargo purposes **-** Is Electric Light fitted **Yes**

Trade for which vessel is intended **Coasting Service.**

L ENGINES, &c.—Type of Engines **Airless injection heavy oil** 2 or 4 stroke cycle **2** Single or double acting **Single**

Maximum pressure in cylinders **700 lbs/sq.in** Diameter of cylinders **11,5"** Length of stroke **13,5"** No. of cylinders **6** No. of cranks **6**

Mean Indicated Pressure **53,5 lbs/sq.in.**

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge **16,75"** Is there a bearing between each crank **Yes**

Revolutions per minute **330** Flywheel dia. **36,75"** Weight **15,5 cwts.** Means of ignition **Compression** and of fuel used **Heavy oil**

Crank Shaft, ^{Solid forged} dia. of journals as per Rule **6,25"** as fitted **6,75"** Crank pin dia. **6,75"** Crank Webs Mid. length breadth **9"** Thickness parallel to axis **-**

Flywheel Shaft, diameter as per Rule **3,93"** as fitted **4"** Thrust Shaft, diameter at collars as per Rule **4,13"** as fitted **4,75"**

Intermediate Shafts, diameter as per Rule **4,52"** as fitted **4,625"** Is the ^{shaft} screw shaft fitted with a continuous liner **No**

Screw Shaft, diameter as per Rule **4,52"** as fitted **4,625"**

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 **-**

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner **-**

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 **-**

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 **-**

Length of Bearing in Stern Bush next to and supporting propeller **19,5"**

Propeller, dia. **59"** Pitch **43"** No. of blades **4** Material **C.I.** whether Moveable **No.** Total Developed Surface **9,6** sq. feet

Method of reversing Engines **Direct** Is a governor or other arrangement fitted to prevent racing of the engine when declutched **Yes** Means of lubrication **forced**

Thickness of cylinder liners **1,125"** Are the cylinders fitted with safety valves **Yes** Are the exhaust pipes and silencers water cooled or lagged with non-conducting material **Yes** If 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** **4,25" 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 **4,25"** Stroke **3"** Can one be overhauled while the other is at work **-**

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

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 **2 @ 1 1/4" dia. x 3" 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 **-**

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 **-**

Is 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 **-**

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 **-**

On 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 **6" & 2-75"** Stroke **3"** Driven by **Main Engine**

Auxiliary Air Compressors, No. **One** No. of stages **One** Diameters **4,5"** Stroke **2,75"** Driven by **Aux. Engine**

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

Is provision made for first Charging the Air Receivers **Auxiliary air compressor driven by hand started auxiliary engine**

Scavenging Air Pumps, No. **Underside of pistons** Diameter **2,21"** Stroke **3** Driven by **-**

Auxiliary Engines crank shafts, diameter as per Rule **2,25"** as fitted **2,25"** Position **-**

Have the Auxiliary Engines been constructed under special survey **Yes** Is a report sent herewith **Yes**

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AIR RECEIVERS: — Have they been made under survey **Yes** State No. of Report or Certificate —

Is each receiver, which can be isolated, fitted with a safety valve as per Rule —

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 — Actual —

Starting Air Receivers, No. 3 Total cubic capacity 18,4 cu.ft. Internal diameter 1 @ 9,875" thickness .25" & .3125 sq.in. by Rules 460 lbs/sq.in. Actual 550 lbs/sq.in.

Seamless, lap welded or riveted longitudinal joint **Seamless** Material **S.M. Steel** Range of tensile strength 28,32 tons/sq.in. Working pressure Actual 550 lbs/sq.in.

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 22-4-40 (If not, state date of approval)

Receivers 22-4-40 & 25-2-48 Separate Fuel Tanks —

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 propeller.**

The foregoing is a correct description.

For H. WIDDOP & COMPANY LTD.

Manufacturer.

Dates of Survey while building { During progress of work in shop 9-10-41, 15-10-41, 19-11-41, 26-11-41, 4-12-41, 17-3-42
During erection on board vessel -- }
Total No. of visits

Dates of Examination of principal parts—Cylinders 15-10-41 Covers 19-11-41 Pistons 17-3-42 Rods — Connecting rods 15-10-41

Crank shaft 9-10-41 Flywheel shaft — Thrust shaft 15-10-41 Intermediate shafts — Tube shaft —

Screw shaft — Propeller — Stern tube — Engine seatings — Engines holding down bolts —

Completion of fitting sea connections — Completion of pumping arrangements — Lloyd's No. 147 J.N.B. 20-5-41 Engines tried under working conditions —

Crank shaft, Material **S.M. Steel** Identification Mark **JWL.9-10-41** Flywheel shaft, Material — Identification Mark —

Thrust shaft, Material **30-35 tons** Identification Mark **Lloyd's No. 280** Intermediate shafts, Material **S.M. Steel** Identification Marks —

Tube shaft, Material — Identification Mark — Screw shaft, Material **S.M. Steel** Identification Mark —

Identification Marks on Air Receivers **Nos. 54592 & 54595 L.T. 25-3-41. LLOYD'S TEST 1000 lbs sq.in.**

D.811

(Above identification marks supplied by Messrs. Widdop. D.811 made by Ruston & Hornsby under

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 **EMPIRE RIVER (Watsons, Gainsbrough)**

General Remarks (State quality of workmanship, opinions as to class, &c. This engine has been constructed under Special Survey of tested materials, 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 the purpose intended and when satisfactorily installed and reported will be eligible to receive the notation of **L.M.C.** (with date).

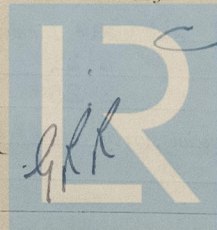
The amount of Entry Fee .. £ 3 : 0 : When applied for, 9-4-1942
2/3rds Special & 25% Special .. £ 32 : 0 :
Donkey Boiler Fee .. £ : : When received,
Travelling Expenses (if any) £ 3 : 0 : 19

Committee's Minute

LIVERPOOL 14 JUL 1942

Assigned See Minute on Liverpool S.E. Machinery Report

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



Lloyd's Register
Foundation