

# REPORT ON OIL ENGINE MACHINERY.

No. 70041

Received at London Office 24 OCT 1945

4th July, 45

GLASGOW.

Port of GLASGOW.

Last Survey 10th Oct., 45

No. in Survey held at Reg. Book.

Single  
on the  
Triple  
Quadruple  
GLASGOW

Screw vessel

"EMPIRE FITZROY"

Tons Gross 890  
Net 370

Built at GLASGOW.

By whom built A. & J. INGLIS

Yard No. 1301 When built 1945.

Engines made at GLASGOW.

By whom made BRITISH POLAR ENGINES, LD.

Engine No. 497 When made 1945.

Donkey Boilers made at CARFIN

By whom made ALEX. ANDERSON & SONS, LD.

Boiler No. 3871 When made 1945.

Brake Horse Power 640

Owners MINISTRY OF WAR TRANSPORT.

Port belonging to GLASGOW.

Nom. Horse Power as per Rule 125

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

Trade for which vessel is intended

L ENGINES, &c.—Type of Engines Heavy Oil M. 44M.

2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 782 lbs/sq.in.

Diameter of cylinders 340 m/m

Length of stroke 570 m/m No. of cylinders 4

No. of cranks 4

Mean Indicated Pressure 96 lbs/sq.in.

Is there a bearing between each crank Yes

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 484 m/m

Means of ignition Compression Diesel

Revolutions per minute 250

Flywheel dia. 1550 m/m

Weight 4400 lbs

Mid. length breadth 308 m/m

Thickness parallel to axis -

Crank Shaft, Solid forged dia. of journals as per Rule 211 m/m as fitted 220 m/m

Crank pin dia. 220 m/m

Crank Webs Mid. length thickness 122 m/m

Thickness around eye-hole -

Flywheel Shaft, diameter as per Rule 211 m/m as fitted 260 m/m

Intermediate Shafts, diameter as per Rule 1377 m/m as fitted 9 1/2"

Thrust Shaft, diameter at collars as per Rule 144 m/m as fitted 260 m/m

Tube Shaft, diameter as per Rule 7 as fitted 8"

Screw Shaft, diameter as per Rule 8 1/2"

Is the tube screw shaft fitted with a continuous liner No

Bronze Liners, thickness in way of bushes as per Rule - as fitted -

Thickness between bushes as per Rule - as fitted -

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 -

shaft Yes If so, state type Newark Length of Bearing in Stern Bush next to and supporting propeller 21-9"

Propeller, dia. 71-6" Pitch 41-4 1/2" No. of blades 4 Material Br. whether Moveable No Total Developed Surface 20.2 sq. feet

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

Thickness of cylinder liners 25.5 m/m Are the cylinders fitted with safety valves Yes Are the exhaust pipes and oil lines or other lines 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 Yes

Cooling Water Pumps, No. One-90 m/m x 140 m/m 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. One Diameter 90 m/m Stroke 140 m/m Can one be overhauled while the other is at work -

Pumps connected to the Main Bilge Line No. and Size 1 - M.E. 90 m/m and 140 m/m - 1 - G.S. 20 Ton/hr. 1-Ballst and 40 Tn/hr. How driven M.E. St. Ford. Aux. Vert. Cent. Elect.

Is the cooling water led to the bilges No 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 1-40 T/hr. and 1-20 ton/hr. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 off 3100 gallons per hour.

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge In Pump Room 1-3"

Pumps, No. and size:—In Machinery Spaces 3-2 1/2"

In Holds, &c. 1-3" 1-2 1/2"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-3" 1-2 1/2"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces Yes

led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes Are they fitted with Valves or Cocks Valves

Are all Sea Connections fitted direct on the skin of the ship Yes Are the Overboard Discharges above or below the deep water line Below

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes How are they protected -

What pipes pass through the bunkers None Have they been tested as per Rule Yes

What pipes pass through the deep tanks -

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 -

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 175 m/m & 70 m/m Stroke 350 m/m Driven by Main Engines

Auxiliary Air Compressors, No. 26 cu.ft./min. @ 350 lb./sq.in. Driven by P. aux. engine.

Small Auxiliary Air Compressors, No. 1 No. of stages Small aux. compressor above.

What provision is made for first Charging the Air Receivers 350 m/m Driven by Main Engine.

Scavenging Air Pumps, No. One Diameter 770 m/m Stroke 1-18 KW. 1-25 KW. 1-6 1/2 KW.

Auxiliary Engines crank shafts, diameter as per Rule 2 1/2 and 3 1/2 Position Port St. Aft. St. Ford.

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 **No. 55232.**

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. **None** ✓ 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. **Two** ✓ Total cubic capacity **1600 litres.** Internal diameter **650 m/m** ✓ thickness **14 m/m**

Seamless, lap welded or riveted longitudinal joint **riveted** Material **Steel** ✓ Range of tensile strength **Shell 28/32 tons** ✓ by Rules **355 1** ✓  
**ends 26/30 tons** ✓ Working pressure **Actual** **355 1** ✓

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 **Thrust 12-2-37** **25-6-34**  
(If not, state date of approval) Receivers **20-7-34** Separate Fuel Tanks **22-6-45**

Donkey Boilers **5-8-44** General Pumping Arrangements **18-10-44** Pumping Arrangements in Machinery Space **13-2-45**

Oil Fuel Burning Arrangements **22-6-45**

### SPARE GEAR.

Has the spare gear required by the Rules been supplied **Yes**

State the principal additional spare gear supplied **As per attached list.** **Intermediate + Screw 4.9.44**

The foregoing is a correct description,

BRITISH POLAR ENGINES LIMITED

Manufacturer.

Dates of Survey while building { During progress of work in shops -- **1945 May 7. 22. 28. 30. 31 Jun 1. 6. 11. 12. 13. 15. 19. 25. 27. 28. 29 Jul 11. 31 Aug 30. 30. Sep 13. 28 Oct 1. 8. 9 10**  
During erection on board vessel --  
Total No. of visits **26**

Dates of Examination of principal parts—Cylinders **13-6-45.** Covers **19-6-45** Pistons **28-5-45.** Rods **28-5-45.** Connecting rods **28-5-45.**

Crank shaft **22-5-45.** Flywheel shaft **22-5-45.** **12-6-45** shaft **22-5-45.** Intermediate shafts **1-6-45.** Tube shaft **-**

Screw shaft **6-4-45.** Propeller **1-6-45.** Stern tube **1-6-45.** Engine seatings **31-5-45.** Engines holding down bolts **30-8-45.**

Completion of fitting sea connections **27-6-45.** Completion of pumping arrangements **8-10-45.** Engines tried under working conditions **9-10-45.**

Crank shaft, Material **Steel** Identification Mark **No. 3115, F.H. 11-1-45.** Flywheel shaft, Material Identification Mark

Thrust shaft, Material **Steel** Identification Mark **No. 632, T.T. 4109** Intermediate shafts, Material **SM Steel** Identification Marks **LLOYD'S 9308**

Tube shaft, Material **-** Identification Mark **5-1-45.** Screw shaft, Material **SM. Steel** Identification Mark **LLOYD'S 9307**

Identification Marks on Air Receivers **No. 55232**

**LLOYD'S TEST.**

**555 lbs.**

**W.P. 355 lbs.**

**P.W. 17-3-45.**

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** ✓

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 **M.V. "EMPIRE BELGRAVE" Glasgow Report No.: 69670**

General Remarks (State quality of workmanship, opinions as to class, &c. **\* Empire Camelon**

**This engine has been built under Special Survey in accordance with the Rules and approved plans.**

**The materials and workmanship are good. On completion it has been tried on the bench at full power with satisfactory results.**

**This machinery has been securely fitted on board the vessel and tried under working condition and found satisfactory and is eligible, in our opinion, to be classed with record + L.M.C. 10, and notation 2D.B. 180 lb. The Admiralty Specification has been complied with.**

**NOTE: The torsional vibration characteristics of the auxiliary generator engines have not yet been submitted for approval in accordance with Circular No. 1803.**

The amount of Entry Fee .. £ **3** : **0** : **0** When applied for, **23 OCT 1945**  
Special ... .. £ **31** : **5** : **0**  
Donkey Boiler Fee ... .. £ **7** : **16** : **3** When received, **19**  
Travelling Expenses (if any) £ : : **19**

Committee's Minute. **GLASGOW 23 OCT 1945**

Assigned

**+ L.M.C. 10. 45**  
**2 D.B. 180 lb.**

**Thos. P. Gibbons - M. Dal**  
Engineer Surveyor to Lloyd's Register of Shipping.



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