

REPORT ON OIL ENGINE MACHINERY.

No 66280

Received at London Office

Date of writing Report

19

When handed in at Local Office

Port of

GLASGOW.

No. in Survey held at

GLASGOW

Date, First Survey

Last Survey 30-10-1942.

Reg. Book.

Number of Visits

Single
on the Twin
Triple
Quadruple

Screw vessel

M/V "EMPIRE HIGHWAY."

Tons: Gross 7166
Net 4217

Built at

GLASGOW

By whom built BARCLAY CURLE & CO. LD.

Yard No. 690 When built 1942.

Engines made at

By whom made

Engine No. 689 When made 1942.

Boilers made at

By whom made

Boiler No. 690 When made 1942.

Brake Horse Power 3350

Owners MINISTRY OF WAR TRANSPORT.

Port belonging to GLASGOW

Nom. Horse Power as per Rule 685

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

Made for which vessel is intended

23 8

91 16

ENGINES, &c.—Type of Engines OPPOSED-PISTON 2 or 4 stroke cycle 2 Single or double acting SINGLE

Maximum pressure in cylinders 600 lb. Diameter of cylinders 600 mm Length of stroke 2320 No. of cylinders 4 No. of cranks 12

Indicated Pressure 88 lb. SIDE ROOFS

No. of bearings, adjacent to the Crank, measured from inner edge to inner edge 1200 mm Is there a bearing between each crank Yes

Revolutions per minute 108 Flywheel dia. 2006 mm Weight 1 1/4 tons Means of ignition Comp. Kind of fuel used Diesel Oil

Crank pin dia. 450 mm Crank Webs Mid. length breadth 650 mm Thickness parallel to axis 255 mm

Crank pin dia. 450 mm Crank Webs Mid. length thickness 255 mm Thickness around eye hole 201 mm

Wheel 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

Screw Shaft, diameter as per Rule as fitted Is the screw shaft fitted with a continuous liner Yes

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

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

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 5' 3"

Pitch 12' 6" No. of blades 4 Material MIN. BR. whether Moveable No Total Developed Surface 86 sq. feet

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

Thickness of cylinder liners 25 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

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

No. of Water Pumps, No. 2 F.W. 3 S.W. Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Pumps worked from the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work

No. and Size 1-45 Bilge 90 tons 1-Ballast 250 tons

How driven Steam

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

No. and size 1-200 tons Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1-M.E. 4 3/4" x 15 3/4"

No. and size:—In Machinery Spaces 4 @ 3" 2 @ 2 1/2" Bilge Tunnel Well 1 @ 2 1/2" In Pump Room

No. 1, 2, 4 & 5 16 in 2 @ 3" No. 3 16 in 2 @ 2 1/2" Dup tank 2 @ 2 1/2"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 8" & 1 @ 5"

Are the Bilge Suctions in the Machinery Spaces

Are they fitted with Valves or Cocks Both

Are the Overboard Discharges above or below the deep water line Both

Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

How are they protected Encased in steel tube

Have they been tested as per Rule

Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

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

Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door No worked from

If the vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

No. of stages 3 Diameters 10 1/2" - 2 1/2" Stroke 6"

No. of stages 3 Diameters 10 1/2" - 8 1/4" Stroke 6"

No. of stages 3 Diameters 2 1/2" Stroke 6"

Driven by Main engine

Driven by Main engine

Driven by Main engine

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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 *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. *2* Total cubic capacity *278 cu. ft.* Internal diameter *4'-1 1/2"* thickness *1 3/32"*
Seamless, lap welded or riveted longitudinal joint *riveted* Material *Steel* Range of tensile strength *29/33 tons* Working pressure *600 lb.*
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 *22-2-41* Receivers *21-2-41* Separate Fuel Tanks *3-12-41*
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*
State the principal additional spare gear supplied *List attached*



The foregoing is a correct description.
FOR BARCLAY, CURLE & CO., LTD
Alexander Macneil Manufacturer.

Dates of Survey
During progress of work in shops -- *1941. Aug 6. Oct 1, 24-31. Nov 14-25-28. Dec 22-29. 12-16-24-31.*
During erection on board vessel -- *1942. Jan 5-8-12-14-21-24-2-23. Mar 3-10-12-13-20-27-30. Apr 1-3-7-9-14-16-17-24. May 4-6-12-22-26.*
June 2-4-8-9-10-15-17-23-27. July 3-10-16-30. Aug 3-7-19. Sept 9-11-21. Oct 2-9-13-19-30.
Total No. of visits *66.*
Dates of Examination of principal parts—Cylinders *1-4-42* Covers *—* Pistons *10-3-42* Rods *10-3-42* Connecting rods *3-7-42*
Crank shaft *15-6-42* Flywheel shaft *—* Thrust shaft *15-16-42* Intermediate shafts *9-6-42* Tube shaft *—*
Screw shaft *9-6-42* Propeller *7-8-42* Stern tube *30-7-42* Engine sealings *7-8-42* Engines holding down bolts *9-9-42*
Completion of fitting sea connections *7-8-42* Completion of pumping arrangements *18-10-42* Engines tried under working conditions *30-10-42*
Crank shaft, Material *S.M. Steel* Identification Mark *5396ERB* Flywheel shaft, Material *—* Identification Mark *—*
Thrust shaft, Material *S.M. Steel* Identification Mark *5354ERB* Intermediate shafts, Material *S.M. Steel* Identification Marks *170195E*
Tube shaft, Material *—* Identification Mark *—* Screw shaft, Material *S.M. Steel* Identification Mark *5362ERB*
Identification Marks on Air Receivers *LLOYD'S TEST 800 lb.*
WP 600 lb. ATB 4-6-42 & 10-6-42

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 *Steam jets*
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *No* 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 *No* If so, state name of vessel *—*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been built under special survey in accordance with the Rules and approved plans, and the materials and workmanship are good. It has been efficiently installed in the vessel, tested under working conditions and found satisfactory and, in my opinion, is eligible to be classed with notations +LMC 10, 42 and notation CL 2DB 180 lb. The Specⁿ requirements have been carried out satisfactorily.*

The amount of Entry Fee .. £ *60* :
Special £ *109* : *5*
SPECIAL FEE £ *27* : *6*
Donkey Boiler Fee £ *4* : *4*
AIR RECEIVERS £ *12* : *12*
Travelling Expenses (if any) £ *—*
WELDING FEE £ *—*
Committee's Minute *GLASGOW 10 NOV 1942*
Assigned *1/2 LMC 10.42*
oil eng 2DB 180 lb.

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