

# REPORT ON OIL ENGINE MACHINERY.

No 66732,

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Date of writing Report 1. 3. 43 Port of **GLASGOW**  
When handed in at Local Office  
No. in Survey held at **GLASGOW** Date, First Survey **1st Oct 1941** Last Survey **23rd Feb. 1943**  
Reg. Book. Number of Visits **2/0**

on the **Single** Screw vessel **"EMPIRE COURAGE"** Tons Gross  
**Triple** **NOW NAMED "PHILIPS WOUWERMAN"** Net  
Built at **GLASGOW** By whom built **DARCLAY CURLEY & CO. LD.** Yard No. **689** When built **1943**  
Engines made at **-Do-** By whom made **-Do-** Engine No **690** When made **1943**  
Donkey Boilers made at **-Do-** By whom made **-Do-** Boiler No **689** When made **1943**  
Brake Horse Power **3350** Owners **MINISTRY OF WAR TRANSPORT** Port belonging to **GLASGOW**  
Nom. Horse Power as per Rule **685 687** Is Refrigerating Machinery fitted for cargo purposes **NO** Is Electric Light fitted **YES**  
Trade for which vessel is intended **(23 5/8)** **(91 5/16)**

**IL ENGINES, &c.** Type of Engines **OPPOSED-PISTON** 2 or 4 stroke cycle **2** Single or double acting **SINGLE**  
Maximum pressure in cylinders **6.00 lb.** Diameter of cylinders **6.00 mfm** Length of stroke **2320** No. of cylinders **4** No. of cranks **12**  
Mean Indicated Pressure **8.8 lb.** Span of bearings, adjacent to the Crank measured from inner clip to inner clip **12.00 mfm** Is there a bearing between each crank **YES**  
**SIDE RODS** Flywheel dia. **19.50 mfm** Weight **1.4 tons** Means of ignition **Comp.** Kind of fuel used **Diesel Oil**  
Revolutions per minute **108** Crank pin dia. **4.50 mfm** Crank Webs Mid. length breadth **6.50 mfm** Thickness parallel to axis **2.55 mfm**  
Crank Shaft, **Semi built** dia. of journals as per Rule **app.** as fitted **4.50 mfm** Mid. length thickness **2.55 mfm** Thickness around eye hole **2.00 mfm**  
Flywheel Shaft, diameter as per Rule **app.** Intermediate Shafts, diameter as per Rule **app.** Thrust Shaft, diameter at collars as per Rule **app.**  
Tube Shaft, diameter as per Rule **app.** Screw Shaft, diameter as per Rule **app.** Is the shaft fitted with a continuous liner **Yes**

Bronze Liners, thickness in way of bushes as per Rule **app.** Thickness between bushes as per Rule **app.** 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 **no**  
Propeller, dia. **16.50"** Pitch **12.64** No. of blades **4** Material **M.B.R.** 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 **yes** Means of lubrication **Yard**  
Thickness of cylinder liners **2.5 mfm** Are the cylinders fitted with safety valves **Yes** Are the exhaust pipes and silencers 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. **2 FW 3 SW** Is the sea suction provided with an efficient strainer which can be cleared within the vessel **-**  
Bilge Pumps worked from the Main Engines, No. **-** Diameter **-** Stroke **-** Can one be overhauled while the other is at work **-**  
Pumps connected to the Main Bilge Line { No. and Size **1-95 + Bilge 90 tons** 1-Ballast **20 tons**  
How driven **Steam**  
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 @ 20 tons** Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size **1-SPARE 7" x 8" x 18"**  
Are two independent means arranged for circulating water through the Oil Cooler **Yes** Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces **4 @ 3"** 2 @ 2 1/2" Oil Bilge Tunnel well **1 @ 2 1/2"** In Pump Room **-**  
In Holds, &c. **No 1, 2, 4, 5 Holds 2 @ 3"** No 3 Hold **2 @ 2 1/2"** Lab tank **2 @ 2 1/2"**  
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **1 @ 8" + 1 @ 5"**  
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes **Yes** 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 **Yes**  
Are all Sea Connections fitted direct on the skin of the ship **Yes** Are they fitted with Valves or Cocks **Both**  
Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates **Yes** Are the Overboard Discharges above or below the deep water line **Both**  
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel **Yes** Are the Blow Off Cocks fitted with a spigot and brass covering plate **Yes**  
What pipes pass through the bunkers **Bilge + Ballast** How are they protected **encased in steel tube**  
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 **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 **Yes** Is it fitted with a watertight door **no** 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. **-** No. of stages **-** Diameters **10 1/2" - 2 1/4"** Stroke **-** Driven by **-**  
Auxiliary Air Compressors, No. **2** No. of stages **3** Diameters **10 1/2" - 8 1/4"** Stroke **6"** Driven by **Steam engine**  
Small Auxiliary Air Compressors, No. **-** No. of stages **-** Diameters **2 1/4"** Stroke **-** Driven by **-**  
What provision is made for first Charging the Air Receivers **Steam driven compressors**  
Scavenging Air Pumps, No. **6** Diameter **19.60 mfm** Stroke **6.08 mfm** Driven by **Main engine**  
Auxiliary Engines crank shafts, diameter as per Rule **-** as fitted **-** Position **-**  
Have the Auxiliary Engines been constructed under special survey **Yes** Is a report sent herewith **-**



**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 *by Rules*  
**Starting Air Receivers, No.** *2* Total cubic capacity *278 cu. ft.* Internal diameter *4-1/2"* thickness *1 3/32"*  
 Seamless, lap welded or riveted longitudinal joint *welded* Material *steel* Range of tensile strength *29/33 tons* Working pressure *by Rules 600 lb.*  
 Actual *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 *Yes* Receivers *Yes* Separate Fuel Tanks *Yes*  
 (If not, state date of approval)  
 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*



**For BANGSLAY, CURLE & Co., LTD**

The foregoing is a correct description.

Chief Draughtsman *Albion Macneil* Manufacturer.

Dates of Survey while building  
 During progress of work in shops — *1941 Oct 1, 7, Nov 14, 25, 28 Dec 2, 8, 9, 16, 24, 31 1942 Jan 5, 8, 13, 27 Feb 2, Mar 3, 12, 13, 16, 18, 30 Apr 1, 3, 9, 16, 21, 24 May 4*  
 During erection on board vessel — *5, 6, 7, 30, 29 Jan 2, 3, 4, 5, 8, 9, 10, 15, 19, 23, 25, 29, 30 July 3, 6, 10, 29, 31 Aug 10, 20, 25, 27 Sep 9, 11, 17, 22, 30 Nov 3, 9, Dec 7, 9, 11, 1943*  
 Total No. of visits *70*

Dates of Examination of principal parts — Cylinders *29-5-42* Covers — Pistons *10-3-42* Rods *10-3-42* Connecting rods *3-7-42*  
 Crank shaft *7-8-42* Flywheel shaft — Thrust shaft *7-8-42* Intermediate shafts *30-6-42* Tube shaft —  
 Screw shaft *30-6-42* Propeller *30-6-42* Stern tube *30-7-42* Engine seatings *8-12-42* Engines holding down bolts *12-1-43*  
 Completion of fitting sea connections *3-12-42* Completion of pumping arrangements *10-2-43* Engines tried under working conditions *23-2-43*  
 Crank shaft, Material *SM. Steel* Identification Mark *10731 AJB* Flywheel shaft, Material — Identification Mark —  
 Thrust shaft, Material *SM. Steel* Identification Mark *10731 AJB* Intermediate shafts, Material *SM. Steel* Identification Marks *10573 AJB*  
 Tube shaft, Material — Identification Mark — Screw shaft, Material *SM. Steel* Identification Mark *10573 AJB*  
 Identification Marks on Air Receivers *LLOYD'S TEST 800 lb.*  
*WP 600 lb. AJB 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 *Yes* If so, have the requirements of the Rules been complied with *Yes*  
 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 HIGHWAY" Gls. Reg. 66280*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *This machinery 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 record + LMC 2, 43 and notation CL: 2DB. 120 lb.*  
*The specification requirements have been carried out satisfactorily.*

The amount of Entry Fee ..	£ 6	:	When applied for,
Special	£ 109	: 5	<i>2 MAR 1943</i>
SPECIAL FEE ...	27	: 6	
Donkey Boiler Fee ...	£ 27	: 17	When received,
AIR RECEIVERS	£ 4	: 4	19
Travelling Expenses (if any)	12	: 12	
WELDING FEE	12	: 12	
Committee's Minute			

Assigned *-1- LMC 2.43 Oil Eng*  
*2 AB 120 lb.*



Certificate (if required) to be sent to GLASGOW