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## REPORT ON OIL ENGINE MACHINERY.

Received at London Office

F.E. No. 120372.

No. 66833

Date of writing Report

When handed in at Local Office

No. in Survey held at  
Reg. Book.

Port of

Date, First Survey

Last Survey

Number of Visits

Single  
on the Twin  
Triple  
Quadruple

Screw vessel

EMPIRE MACCOLL.

Tons Gross 9133  
Net 4830

Built at Birkenhead

By whom built Cammell, Laird &amp; Co. Ltd.

Yard No. 1106

When built 1943

Engines made at Glasgow

By whom made Harland &amp; Wolff, Ltd.

Engine No. 8459 When made 1943

Donkey Boilers made at Birkenhead

By whom made Cammell Laird &amp; Co. Ltd.

Boiler No. 1106 When made 1943

Brake Horse Power 3300

Owners Ministry of War Transport

Port belonging to

Nom. Horse Power as per Rule 490

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

Trade for which vessel is intended

OIL ENGINES, &amp;c.—Type of Engines Heavy oil. Airless injection 2 or 4 stroke cycle 4 Single or double acting S.A.

Maximum pressure in cylinders 700 lb. Diameter of cylinders 298 591/16 mm Length of stroke 1500 No. of cylinders 6 No. of cranks 6

Mean Indicated Pressure 128

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 972 mm Is there a bearing between each crank yes

Revolutions per minute 110 Flywheel dia. 2489 mm. Weight 2590 Kgs. Means of ignition Compression Kind of fuel used Diesel oil.

Crank Shaft, { Solid forged dia. of journals as per Rule Appd. 505 mm. as fitted 505 mm. Crank pin dia. 505 mm. BORED 230 mm. Mid. length breadth 980 mm. Thickness parallel to axis 310 mm. Semi built All built BORED 115 mm. Crank Webs Mid. length thickness 310 mm. Thickness around eye hole 292.5 mm.

Flywheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule 13.44" 13.48" Thrust Shaft, diameter at collars as per Rule Appd. 454 mm. as fitted 454 mm.

Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 15.1" 14.81" Is the shaft fitted with a continuous liner yes

Bronze Liners, thickness in way of bushes as per Rule 25 32 Thickness between bushes as per Rule 9/16 11/16 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 If so, state type Length of Bearing in Stern Bush next to and supporting propeller 5'2"

Propeller, dia. 16'0" Pitch 11'6" No. of blades 4 Material Mn: BR. whether Moveable NO Total Developed Surface 81 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

friction Thickness of cylinder liners 53 mm. to 41 mm. Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with

non-conducting material lagged 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 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. 2 Bilge Sanitary 8x8x10 Duplex, 1 Ballast 10x11x10 Duplex Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line No. and Size 2 Bilge Sanitary 8x8x10 Duplex, 1 Ballast 10x11x10 Duplex How driven Steam

Is the cooling water led to the bilges Plummis Block so, state what special arrangements are to deal with this water in addition to the ordinary bilge pumping

arrangements Nothing additional to normal bilge suc.

Ballast Pumps, No. and size 1 @ 10'x11'x10" Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 Engine driven 100 tons 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

Pumps, No. and size:—In Machinery Spaces 3 @ 3 1/2" In Pump Room 2 @ 4

In Holds, &amp; Forehold 1 @ 2 1/2" P.S. In Forehold 1 @ 2" P.S. INDEPENDENT 10'x12'x24 SIMPLEX.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 6" aft well. 1 @ 8" Emergency P.S.

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 Built Boxes Are they fitted with Valves or Cocks valves

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 Below and at L.W.L.

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 none How are they protected

What pipes pass through the deep tanks none 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 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. 2 No. of stages 2 Diameters 1 @ 8 7/8" Stroke 6 1/4" Driven by Steam

Auxiliary Air Compressors, No. 2 No. of stages 2 Diameters 1 @ 4 1/8" Stroke 6 1/4" Driven by Steam

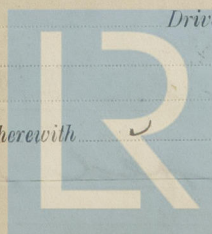
Small Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by

What provision is made for first Charging the Air Receivers Steam driven Compressor

Scavenging Air Pumps, No. Diameter Stroke Driven by

Auxiliary Engines crank shafts, diameter as per Rule as fitted No. Position

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



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007495-001502-0235



AIR RECEIVERS: — Have they been made under survey *yes* State No. of Report or Certificate *4034 Lhl previously forwarded*  
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 Actual  
Starting Air Receivers, No. *2* Total cubic capacity *450 c.f. each* Internal diameter *4'-10 7/8"* thickness *27/32"*  
Seamless, lap welded or riveted longitudinal joint *Riveted* Material *Steel* Range of tensile strength *28/32 Ton* Working pressure by Rules *370 lb* Actual *350 lb*

IS A DONKEY BOILER FITTED? *Yes - Two* 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 *Thrust 23-4-41* Receivers *31/10/40* Separate Fuel Tanks *✓*  
(If not, state date of approval) *1-5-41*  
Donkey Boilers *18-11-41* General Pumping Arrangements *12-7-41* Pumping Arrangements in Machinery Space *27-10-41*  
Oil Fuel Burning Arrangements *2-10-41*

### SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes, in accordance with emergency arrangements*  
State the principal additional spare gear supplied *See list attached*

The foregoing is a correct description.

FOR HARLAND AND WOLFF, LIMITED

Wm. J. Wright.

Manufacturer.

CAMMELL LAIRD & CO LIMITED

W. H. W. W. W.

Dates of Survey while building  
During progress of work in shops --  
During erection on board vessel --  
Total No. of visits  
1941 Dec 29 1942 Jan 13 Mar 9 Apr 21 May 1 Jun 18 Jul 8 9 10 11 Aug 14 Sep 7 8 17 Oct 23 28 Nov 5 Dec 3 7 11 15 19  
1943 Jan 4 5 7 12 14 22 29 Feb 15 28 Mar 2 16  
Apr 5 7 21 24 May 6 13 18 28 June 3 7 11 15 16 17 29 30 July 5 9 13 15 July 1 8 22 23 25 28 29 Aug 4 18 24 25 26 27 Sept 3 7 10 13 15 22 23  
29 30 Oct 1 5 11 12 15 18 20 21 22 29 Nov 1 9 16 16 25  
38 + 58  
3-12-42 5 3-12-42 5 30-12-42 5 30-12-42 5  
Dates of Examination of principal parts—Cylinders 26-12-42 Covers 26-12-42 Pistons 12-1-43 Rods 12-1-43 Connecting rods 22-1-43  
Crank shaft 8-9-42 Flywheel shaft 15-7-43 Thrust shaft 8-9-42 Intermediate shafts 18-8-43 Tube shaft 13-9-43  
Screw shaft 16-6-43 Propeller 15-7-43 Stern tube 9-7-43 Engine sealings 28-6-43 Engines holding down bolts 25-11-43  
Completion of fitting sea connections 9-7-43 Completion of pumping arrangements 15-11-43 Engines tried under working conditions 25-11-43  
Crank shaft, Material *Steel* Identification Mark *8459/4 P7* Flywheel shaft, Material *Steel* Identification Mark *10995 B.G.*  
Thrust shaft, Material *Steel* Identification Mark *5.3960 P7* Intermediate shafts, Material *Steel* Identification Marks *10993 WH-A*  
Tube shaft, Material *Steel* Identification Mark *10993 WH-A*  
Identification Marks on Air Receivers *4034 R.O.B. 13-7-43*

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 *Chemical*  
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 *Engine A/78 MSM. Glasgow Rpt No 66106*  
*Cammell and 1105 BRITISH RESTRAINT*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*This machinery has been built under Special Survey & in accordance with the Rules of this Society, the approved plans, & the Ministry of War Transport Specification. The materials & workmanship are good. Shop trials have been satisfactorily carried out. The machinery has been despatched to the Yard of Messrs Cammell, Laird & Co. Ltd, Birkenhead, to be installed on board their yard No. 1105. It will be eligible in my opinion to be classed in the Register Book with the notation -i-LMC. c. with date when efficiently installed on board the vessel & tried under working conditions. This machinery is fitted in H.M. EMPIRE MACCOLL, tried under working conditions & found eligible for record + LMC 11-43. CL, subject to cracked bedplate in way of thrust being examined by 11-44.*

The amount of Entry Fee £ 5 : -  
Special Specification £ 65 : 13  
Donkey Boiler Fee £ 16 : 8  
Travelling Expenses (if any) £ 32 : 17-0  
When applied for *23 MAR 1943*  
When received, *15 DEC 1943*

Committee's Minute *GLASGOW 23 MAR 1943*

Assigned *Deferred for completion*

P. Fitzgerald & A. Sutherland  
Engineers Surveyors to Lloyd's Register of Shipping.

Liverpool 21 DEC 1943  
+ LMC 11-43, Subject  
C.L. F.D.  
Oil engines.