

Rpt. 4b.

# REPORT ON OIL ENGINE MACHINERY.

No 66680

- 3 AUG 1943

Received at London Office

18 FEB 1943

Date of writing Report 15.2.1943 When handed in at Local Office 15.2.1943 Port of Glasgow  
 No. in Survey held at Glasgow Date, First Survey 6th Oct 1941 Last Survey 9th Feb 1943  
 Reg. Book. Number of Visits 32 + 37 fitting out of Newcastle  
 on the ~~Single~~ ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel M.V. "EMPIRE ALLIANCE" Tons Gross  
 Built at Sunderland. By whom built Sir James Laing & Sons, Ltd. Yard No. 747 When built 1943.  
 Engines made at Glasgow By whom made Harland & Wolff, Ltd. Engine No. 8459/3 When made 1943  
 Donkey Boilers made at By whom made Boiler No. When made  
 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 Is Electric Light fitted  
 Trade for which vessel is intended

OIL ENGINES, &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 29 1/8 740 mm. Length of stroke 59 1/8 1500 mm. 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 App. 505 mm. Crank pin dia. 505 mm. Crank Webs Mid. length breadth 980 mm Thickness parallel to axis 310 mm.  
 { Semi built as fitted 505 mm. BORED 230 mm. Mid. length thickness 310 mm. shrunk Thickness around eye-hole 292.5 mm.  
 { All built BORED 115 mm.

Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule 13.82 Thrust Shaft, diameter at collars as per Rule App. 454 mm.  
 as fitted 18"

Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule 15.15 Is the tube shaft fitted with a continuous liner {  
 as fitted 16"

Bronze Liners, thickness in way of bushes as per Rule Thickness between bushes as per Rule 183/32 Is the after end of the liner made watertight in the  
 as fitted 16 9/8

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 If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Propeller, dia. 16'-0" Pitch No. of blades Material whether Moveable Total Developed Surface sq. feet

Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when detached yes Means of lubrication  
 forced. Thickness of cylinder liners 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  
 1 main engine driven 180 ton per hour

Cooling Water Pumps, No. Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Bilge Pumps worked from the Main Engines, No. none Diameter Stroke Can one be overhauled while the other is at work

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

Is 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 1 engine driven 100 ton/hour

Ballast Pumps, No. and size Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size

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

In 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  
 led 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

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 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. No. of stages Diameters Stroke Driven by

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

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

What provision is made for first Charging the Air Receivers

Scavenging Air Pumps, No. Diameter Stroke Driven by

Auxiliary Engines crank shafts, diameter as per Rule No. Position Is a report sent herewith



003458-003465-0065

AIR RECEIVERS: — Have they been made under survey 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

Is a drain fitted at the lowest part of each receiver

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. Total cubic capacity Internal diameter thickness Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules Actual

IS A DONKEY BOILER FITTED?

If so, is a report note forwarded?

Is the donkey boiler intended to be used for domestic purposes only

PLANS. Are approved plans forwarded herewith for Shafting Thrust Reversers Separate Fuel Tanks (If not, state date of approval)

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

State the principal additional spare gear supplied

The foregoing is a correct description.

For HARLAND AND WOLFE, LIMITED

Wm. J. Wright

Manufacturer.

Dates of Survey while building During progress of work in shops -- 1941 Oct 6 Nov 13 Dec 29 1942 Feb 13 Mar 9 Apr 21 May 1 Jun 8.18 Jul 10 Aug 14 Sep 7.17 Oct 7.14 22 28 Nov 5.13 18 During erection on board vessel -- 20 23 30 Dec 4.7.11.25 1943 Jan 15.21 22 Feb 9 Sec Newcastle Report 101434 Total No. of visits 32

Dates of Examination of principal parts — Cylinders 18-11-42 30-11-42 Covers 18-11-42 30-11-42 Pistons 13-11-42 6 Rods 13-11-42 6 Connecting rods 11-12-42

Crank shaft 8-6-42 Flywheel shaft Thrust shaft 8-6-42 Intermediate shafts Tube shaft

Screw shaft Propeller Stern tube Engine seatings Engines holding down bolts

Completion of fitting sea connections Completion of pumping arrangements Engines tried under working conditions

Crank shaft, Material Steel Identification Mark 8459/3.P.9 Flywheel shaft, Material Identification Mark

Thrust shaft, Material Steel Identification Mark S.3326 P.9 Intermediate shafts, Material Identification Marks

Tube shaft, Material Identification Mark Screw shaft, Material Identification Mark

Identification Marks on Air Receivers

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 A 178 MSM. Glasgow Rpt No. 66106

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 and workmanship are good.

Shop trials have been satisfactorily carried out. The machinery has been despatched to the yard of Messrs Sir James Laing & Sons, Ltd to be installed on board their yard No 747. It will be eligible in my opinion to be classed in the Register Book with the notation +L.M.C. C.L. with date when efficiently installed on board the vessel & tried under working conditions

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The amount of Entry Fee .. £ 5 : : When applied for, Special 25-1-198-10-0 £ 65 : 13 : 16 FEB 1943 Donkey Boiler Fee Specification £ 16 : 8 : When received, Travelling Expenses (if any) £ : : 19

Committee's Minute GLASGOW 16 FEB 1943

Assigned deferred for completion

P. Fitzgould, Engineer Surveyor to Lloyd's Register of Shipping.

FEB 23 AUG 1943

Lloyd's Register Foundation