

Rpt. 4b.

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2 JUL 1946

# REPORT ON OIL ENGINE MACHINERY.

No. 14187

Received at London Office

29 JUN 1946

Date of writing Report 26<sup>th</sup> JUNE 1946 When handed in at Local Office 26<sup>th</sup> JUNE 1946 Port of BELFAST

No. in Survey held at BELFAST Date, First Survey 14<sup>th</sup> March 1945 Last Survey 20<sup>th</sup> June 1946  
Reg. Book. Number of Visits 148

Single  
on the Triple Screw vessel  
Quadriple

"LYRIA"

Tons { Gross 6452  
Net 3603

Built at BELFAST By whom built HARLAND & WOLFF, LD Yard No. 1308 When built 1946

Engines made at BELFAST By whom made HARLAND & WOLFF, LD. Engine No. 1308 When made 1946

Donkey Boiler made at BELFAST By whom made HARLAND & WOLFF, LD. Boiler No. 1308 When made 1946

Brake Horse Power 2800 Owners ANGLO-SAXON PETROLEUM CO. LD. Port belonging to LONDON

Nom. Horse Power as per Rule 377 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted YES

Trade for which vessel is intended CARRYING PETROLEUM IN BULK

OIL ENGINES, &c.—Type of Engines DIESEL WITH UNDER PISTON SUPERCHARGE. 2 or 4 stroke cycle 4 Single or double acting S

Maximum pressure in cylinders 700 LB/0" Diameter of cylinders 650 MM Length of stroke 1400 MM No. of cylinders 6 No. of cranks 6

Mean Indicated Pressure 128 LB/0" Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 844 MM Is there a bearing between each crank YES

Revolutions per minute 120 Flywheel dia. 2218 MM Weight 7500 Kgs. Means of ignition COMP. Kind of fuel used DIESEL

Crank Shaft, { Solid forged dia. of journals as per Rule — as fitted 460 MM Crank pin dia. 460 MM Crank Webs Mid. length breadth 750 MM Thickness parallel to axis 267-PINS  
{ Semi built All built as fitted 134 MM CENTRAL HOLE Mid. length thickness 267 MM Thickness around eye-hole 290-JOBS.  
Flywheel Shaft, diameter as per Rule — as fitted 460 MM Intermediate Shafts, diameter as per Rule — as fitted 16 1/2" Thrust Shaft, diameter at collars as per Rule — as fitted 15 1/2"

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

Bronze Liners, thickness in way of bushes as per Rule — as fitted 13/16" Thickness between bushes as per Rule — as fitted 21/32" 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 4'-10"

Propeller, dia. 14'-9" Pitch 11'-0" No. of blades 4 Material MANG. BR. whether Moveable SOLID Total Developed Surface 75 sq. feet

Method of reversing Engines COMP. AIR Is a governor or other arrangement fitted to prevent racing of the engine when disengaged YES Means of lubrication FORCED Thickness of cylinder liners 48 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 S.W. 2 F.W. 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. 1 Diameter ROTARY Stroke — Can one be overhauled while the other is at work —

Pumps connected to the Main Bilge Line { No. and Size 1 @ 28 T/HR 1 @ 40 T/HR 1 @ 100 T/HR  
How driven MAIN ENG. STEAM 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 @ 100 T/HR Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 INDEP. SPARE @ 100 T/HR.

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 1 @ 2 1/2"

In Holds, &c. 2 @ 2 1/2" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 6" 1 @ 4" 1 @ 6" EMERGENCY.

Are all the Bilge Suction pipes in Holds and Tunnel Wall 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 YES

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 ABOVE

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

STARTING Main Air Compressors, No. 1 No. of stages 2 Diameters 124 FT<sup>3</sup> Stroke FREE AIR/MIN. Driven by STEAM

STARTING Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 90 FT<sup>3</sup> Stroke " Driven by AUXY. OIL ENG.

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

What provision is made for first Charging the Air Receivers STEAM DRIVEN COMP.

Scavenging Air Pumps, No. — Diameter — Stroke — Driven by —

Auxiliary Engines crank shafts, diameter as per Rule — as fitted 4 3/16" JOUR. 3 1/4" PIN No. 1 4 cy. BHP 48 Rustin Hornsby. Position ENG. RM. STARBO.

Have the Auxiliary Engines been constructed under special survey YES Is a report sent herewith SEE ATTACHED NOTT<sup>M</sup> CERT.



**AIR RECEIVERS:**—Have they been made under survey **YES** ✓ State No. of Report or Certificate **Z1662** ✓  
 Is each receiver, which can be isolated, fitted with a **FUSIBLE PLUG** **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.** 1 ✓ Total cubic capacity **500 FT<sup>3</sup>** ✓ Internal diameter **6'-0 5/16"** ✓ thickness **1"** ✓  
 Seamless, lap welded or riveted longitudinal joint **RIV.** ✓ Material **S** ✓ Range of tensile strength **28/32T/0"** ✓ Working pressure by Rules — Actual **356 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 **23/2/45, 15/3/45** Receivers **10/4/45** Separate Fuel Tanks **NONE**  
 Donkey Boilers **2/6/45** General Pumping Arrangements **9/11/45** Pumping Arrangements in Machinery Space **9/11/45**  
 Oil Fuel Burning Arrangements **2/1/46** **SPARE GEAR.**  
 Has the spare gear required by the Rules been supplied **YES** ✓  
 State the principal additional spare gear supplied **SEE ATTACHED LIST**

**N.B. FORGING RPTS. WILL BE FORWARDED WITH RPT. FOR SISTER VESSEL M.V. "LINGA" (YARD No. 1309) IN DUE COURSE.**

The foregoing is a correct description,  
**FBI KARLAND AND WOLFF, LIMITED** Manufacturer.  
*J. Marshall*

**Dates of Survey while building**  
 During progress of work in shops-- 1945  
 Mar 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31  
 During erection on board vessel--  
 Dec 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31  
 Total No. of visits **148**

**Dates of Examination of principal parts**—Cylinders **3, 6/10/45** Covers **4/7-14/8/45** Pistons **19/11-3/12/45** Rods **2/11/45** Connecting rods **10, 15/10/45**  
 Crank shaft **13/10/45** Flywheel shaft **13/10/45** Thrust shaft **9/10/45** Intermediate shafts **1/3/46** Tube shaft —  
 Screw shaft **1/3/46** Propeller **12/1/46** Stern tube **22/3/46** Engine sealings **8/11/45** Engines holding down bolts **18/4/46**  
 Completion of filling sea connections **26/2/46** Completion of pumping arrangements **14/5/46** Engines tried under working conditions **20/6/46**  
 Crank shaft, Material **STEEL** Identification Mark **LLOYD'S NO. 1120** Flywheel shaft, Material **STEEL** Identification Mark **AS CRANK**  
 Thrust shaft, Material **STEEL** Identification Mark **LLOYD'S NO. 52268** Intermediate shafts, Material **STEEL** Identification Marks **52265, 52266**  
 Tube shaft, Material — Identification Mark — Screw shaft, Material **STEEL** Identification Mark **LLOYD'S NO. 45, 52264, 52265**  
 Identification Marks on Air Receivers **No. 335**

**LLOYD'S TEST 356 LBS. W.P. 356 LBS. J.M.A. 26/11/45** ✓  
**STEAM FIRE EXT. INSTALLATION FITTED WITH REMOTE CONTROL, ALSO PORTABLE CHEMICAL EXTINGUISHERS - 3 @ 10 GALS. & 7 @ 2 GALS.**  
 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 **No** ✓ If so, state name of vessel —

**General Remarks** (State quality of workmanship, opinions as to class, &c.) **This machinery has been constructed under special survey in accordance with the Society's Rules and Regulations and the Secretary's letters. The scantlings and arrangements are in accordance with the approved plans. The materials and workmanship are good. The machinery has been efficiently installed on board the vessel and tested under full working conditions at sea with satisfactory results (Torsional vibration characteristics approved 23/3/45) ✓**  
**In our opinion this machinery is eligible to receive the notations:-** + L.M.C. 6,46 OIL ENGINE  
 T.S.-C.L. D.B. 180 LB.

The amount of Entry Fee .. £ 6 : : When applied for,  
 Special ... £ 81 : 11 : 27-June 1946  
 Donkey Boiler Fee ... £ 23 : 12 : : When received,  
 Travelling Expenses (if any) £ : : : 19  
**AIR RECEIVER # 4** FRI. 26 JUL 1946  
 Committee's Minute  
 Assigned + LMC 6,46 Oil Eng.  
 C.L. D.B. 180 lb.

*John McAfee*  
 Engineer Surveyor to Lloyd's Register of Shipping.



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