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REPORT ON OIL ENGINE MACHINERY.

No. 14345

Received at London Office 11 APR 1947

Date of writing Report 19 When handed in at Local Office 9 April 1947 Port of BELFAST

No. in Survey held at BELFAST Reg. Book. Date, First Survey 6 May 1946 Last Survey 27 March 1947 Number of Visits 130

87902 on the Twin (Screw) Triple Screw vessel LINGULA Tons Gross 6445 Net 3618

Built at BELFAST By whom built HARLAND & WOLFF LTD. Yard No. 1347 When built 1947
Engines made at BELFAST By whom made HARLAND & WOLFF LTD. Engine No. 1347 When made 1947
Donkey Boiler made at BELFAST By whom made HARLAND & WOLFF LTD. Boiler No. 1360 When made 1947
Brake Horse Power 2700 Owners ANGLQ SAXON PETROLEUM CO. LTD. Port belonging to LONDON
Nom. Horse Power as per Rule 536 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 SINGLE
Maximum pressure in cylinders 700 lb./sq. in. Diameter of cylinders 650 m.m. Length of stroke 1400 m.m. No. of cylinders 6 No. of cranks 6
Mean Indicated Pressure 128 lbs./sq. in. Span of bearings, adjacent to the crank, measured from inner edge to inner edge 844 m.m. Is there a bearing between each crank YES
Revolutions per minute 120 Flywheel dia. 2218 m.m. Weight 7500 Kgs. Means of ignition COMPRESSION Kind of fuel used HEAVY OIL

Crank Shaft, dia. of journals 460 m.m. Crank pin dia. 460 m.m. Crank webs (134 m.m. CENTRE HOLE) Mid. length breadth 750 m.m. Thickness parallel to axis 290 m.m. JRNL. 267 m.m. PIN
Flywheel Shaft, diameter 16.5 ins. Thrust Shaft, diameter at collars 15.5 ins.

Tube Shaft, diameter 16 ins. Is the screw shaft fitted with a continuous liner YES
Screw Shaft, diameter 16 ins.

Bronze Liners, thickness in way of bushes 13/16" Thickness between bushes 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 YES

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 YES
If two liners are fitted, is the shaft lapped or protected between the liners YES Is an approved Oil Gland or other appliance fitted at the after end of tube shaft NO

Propeller, dia. 14'-9" Pitch 11'-0" No. of blades 4 Material MAX. BRONZE 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 4.8 m.m. 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 YES Cooling Water Pumps, No. 4 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 YES Can one be overhauled while the other is at work YES

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 ENGINE. 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 YES

Ballast Pumps, No. and size 1 @ 6" x 6" x 6" FORD. Power Driven Lubricating Oil Pumps, including spare pump, No. and size 1- MAIN ENG. DRIVEN 125 T/HR. 1- INPT 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" (SUCTIONS IN PUMP ROOM AND HOLDS NOT CONNECTED TO MAIN & AUXY BILGE PUMPS.)
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 well fitted with strum-boxes YES Are the bilge suction 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 YES
What pipes pass through the deep tanks NONE Have they been tested as per Rule YES

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 -

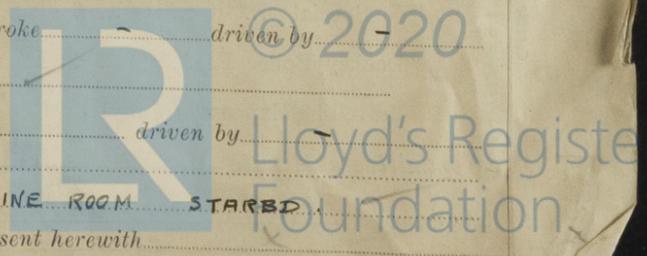
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork -
Main Air Compressors, No. 1 No. of stages 2 120 CU. FT. FREE AIR / MIN. driven by STEAM.

Auxiliary Air Compressors, No. 1 No. of stages 2 90 CU. FT. FREE AIR / MIN. driven by AUX. DIESEL ENGINE.
Small Auxiliary Air Compressors, No. - No. of stages - driven by 2020

What provision is made for first charging the air receivers STEAM DRIVEN AIR COMPRESSOR
Scavenging Air Pumps, No. UNDER PISTON SUPERCHARGED diameter - stroke - driven by -
Auxiliary Engines crank shafts, diameter 4 3/16" JOURNAL 3 1/4" PIN Position ENGINE ROOM STARBD.

Have the auxiliary engines been constructed under special survey YES Is a report sent herewith YES
There are notes attached.

063611-002619-0250



AIR RECEIVERS:—Have they been made under survey YES. State No. of report or certificate Z 1737

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. 1 Total cubic capacity 500 cu. ft. Internal diameter 6'-0 5/16" thickness 1"

Seamless, lap welded or riveted longitudinal joint RIVETED Material STEEL Range of tensile strength 28/32 T/a Working pressure AS. 356 lbs/sq. in.

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 10/4/46 Receivers 25/3/46 Separate fuel tanks 17/10/46

Donkey boilers 11/4/46 General pumping arrangements 5/1/46 Pumping arrangements in machinery space 17/10/46

Oil fuel buring arrangements 17/10/46

SPARE GEAR.

Has the spare gear required by the Rules been supplied YES

State the principal additional spare gear supplied SEE ATTACHED LIST

For RAIWAIR ENGINE LIMITED

The foregoing is a correct description, and the particulars of the installation as fitted are as approved for torsional vibration characteristics See copy Manufacturer.

Dates of Survey while building	During progress of work in shops -	1947 May 6, 20, 24 June 3, 11, 14, 18, 21, 24, 25, 26 July 5, 9, 29 Aug. 6, 8, 10, 12, 16, 20, 21, 23, 26, 30 Sept 3, 7, 11, 13, 18, 19, 20
	During erection on board vessel -	30 Oct. 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31 Nov. 1, 4, 5, 7, 11, 12, 13, 15, 19, 21, 22, 26, 29 Dec. 2, 3, 4, 5, 6, 9, 10, 13, 14, 15, 17, 20, 31 1948 Jan. 1, 2, 3, 4, 7, 9, 10, 13, 14, 15, 16, 17, 20, 21, 23, 24, 27, 29, 31 Feb. 3, 4, 5, 11, 12, 13, 14
Total No. of visits		130

Dates of examination of principal parts—Cylinders 24/28/10-46 Covers 9/10-46 / 21-10-46 Pistons 30-9-46 / 2-10-46 Rods 21/10/46 Connecting rods 21/23-10-46

Crank shaft 7-10-46 Flywheel shaft ✓ Thrust shaft 6-8-46 Intermediate shafts 1-10-46 Tube shaft ✓

Screw shaft 1-10-46 Propeller 9/7/46 Stern tube ✓ Engine scatings 1/1/47 Engine holding down bolts 1/1/47

Completion of fitting sea connections 8/10/46 Completion of pumping arrangements 13/3/47 Engines tried under working conditions 25/3/47

Crank shaft, material STEEL Identification mark LLOYDS No. 1146 Flywheel shaft, material - Identification mark -

Thrust shaft, material STEEL Identification mark 5.3534 RIM. 4/8/46 Intermediate shafts, material STEEL Identification marks S.4206 J.M.C.A.

Tube shaft, material - Identification mark - Screw shaft, material STEEL Identification marks S.2937 J.M.C.A. 1/19

Identification marks on air receivers No. 368 LLOYDS TEST. 556 lbs/sq. in. W.P. 356 lbs/sq. in. J.M.C.A. 10-1-46

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 WITH REMOTE CONTROL, ALSO PORTABLE 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 M.V. LEPTON BELFAST REPORT No. 1433

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 of main engines approved 24/4/46.

In our opinion this machinery is eligible to receive the notation:—
* LMC 347 OIL ENGINE C.L. D.B. 180 lbs.

The amount of Entry Fee ...	£ 128 : 12	When applied for <u>9th April 1947</u>
Special AIR RECEIVER	£ 5 : 0	When received <u>19</u>
Donkey Boiler Fee...	£ 35 : 8	
Travelling Expenses (if any) £	:	

Edwin Greaves Engineer Surveyor to Lloyd's Register of Shipping



Committee's Minute
Assigned + LMC 347 Oil Eng.
C.L. DB 180 lbs.
MAY 9 1947