Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 44636

Received at London Office

Date of writing Report 9. 1. 1922 When handed in at Local Office 9. 1. 1922 Port of Glasgow

No. in Reg. Book. Survey held at Glasgow Date, First Survey 27. 1. 1920. Last Survey 28th Dec 1921 Number of Visits 64.

on the ~~Single~~ Twin ~~Triple~~ Screw vessels "LINNELL" Tons Gross 7424 Net 4494

Master Built at Dumbarton By whom built A. McMillan & Son Yard No. 604 When built

Engines made at Glasgow By whom made Harland & Wolff Ld Engine No. 604 When made 1921

Donkey Boilers made at Anman By whom made Cochran & Co Ld Boiler No. When made

Brake Horse Power 2400 Owners Lamport & Holt Ld Port belonging to Liverpool

Nom. Horse Power as per Rule 655 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

OIL ENGINES, &c.—Type of Engines Diesel 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 500 lb" No. of cylinders 12 No. of cranks 12 Diameter of cylinders 670 a/m 26 3/8"

Length of stroke 1000 a/m 39 3/8" Revolutions per minute 115 Means of ignition Compression Kind of fuel used above 150° F

Is there a bearing between each crank Yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 794 a/m

Distance between centres of main bearings 1320 a/m Is a flywheel fitted Yes Diameter of crank shaft journals as per Rule 390 a/m as fitted 422

Diameter of crank pins 422 a/m Breadth of crank webs as per Rule 520 a/m as fitted 880 Thickness of ditto as per Rule 218 a/m as fitted 215

Diameter of flywheel shaft as per Rule 390 a/m as fitted 422 Diameter of tunnel shaft as per Rule 12 1/16" as fitted 12 1/4 Diameter of thrust shaft as per Rule 322 a/m as fitted 350

Diameter of screw shaft as per Rule 12 15/16" as fitted 13 3/8 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes

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 joints burned fit to whole length

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 — If without liners, is the shaft arranged to run in oil —

Type of outer gland fitted to stern tube wood lined stern bush Length of stern bush 5-0" Diameter of propeller 13-0"

Pitch of propeller 11-0" No. of blades 3 state whether moveable Yes Total surface 50 sq ft each square feet

Method of reversing electric Is a governor or other arrangement fitted to prevent racing of the engine ~~when declutched~~ Yes Thickness of cylinder liners 60 a/m

Are the cylinders fitted with safety valves Yes Means of lubrication Forced Sight feed Are the exhaust pipes and silencers water cooled or 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 —

— No. of cooling water pumps 4 Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes No. of bilge pumps fitted ~~to the main engines~~ 2 double Diameter of ditto 8" Stroke 8"

Can one be overhauled while the other is at work Yes No. of auxiliary pumps connected to the main bilge lines (3) 2 Bilge 1 Ballast How driven electric

Sizes of pumps (2) 8"x8" (1) 10"x10" No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 2@3½. 2@5". 2@2½

and in holds, etc. Hds 1-2-3-4 each 2@3½. Hds 5+6 each 3@3½. Tunnel 1@3" No. of ballast pumps 1 How driven electric Sizes of pumps 10"x10"

Is the ballast pump fitted with a direct suction from the engine room bilges Yes State size 5" Is a separate auxiliary pump suction fitted in Engine Room and size Bilge & Ballast Pumps have Separate Suctions Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine Room always accessible Yes

Are the sluices on Engine Room bulkheads always accessible none Are all connections with the sea direct on the skin of the ship Yes

Are they valves or cocks Both Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates Yes

Are the discharge pipes above or below the deep water line below Are they each fitted with a discharge valve always accessible on the plating of the vessel Yes

Are all pipes, cocks, valves and pumps in connection with the machinery accessible at all times Yes Are the bilge suction pipes, cocks and valves arranged so as to prevent any communication between the sea and the bilges Yes Is the screw shaft tunnel watertight Yes Is it fitted with a watertight door Yes

Worked from Upper deck If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork —

No. of main air compressors 2 No. of stages 3 Diameters 600-540-148 a/m Stroke 350 a/m Driven by Main Shaft

No. of auxiliary air compressors 2 No. of stages 2 Diameters 400-350 a/m Stroke 260 a/m Driven by electric

No. of small auxiliary air compressors 1 No. of stages 2 Diameters 106-34 a/m Stroke 180 a/m Driven by Steam

No. of scavenging air pumps — Diameter — Stroke — Driven by —

Diameter of auxiliary Diesel Engine crank shafts as per Rule 167 a/m as fitted 170 a/m Are the air compressors and their coolers made so as to be easy of access Yes

AIR RECEIVERS:—No of high pressure air receivers (8) Nos:- 331. 2. 3. 4. 5. 6. 7 & 8 Internal diameter 295 a/m Cubic capacity of each (5) 150 Litres (3) 88 "

Material Steel Seamless, lap welded or riveted longitudinal joint Seamless Range of tensile strength 28/32 (See Separate Report Bd 8467)

Thickness .59" working pressure by Rules 1333 lb No. of starting air receivers 2 Internal diameter 6-0 3/8"

Total cubic capacity 940 ft Material Steel Seamless, lap welded or riveted longitudinal joint Riveted

Range of tensile strength 28/32 tons thickness 1 3/32" Working pressure by rules 398 lb Is each receiver, which can be isolated, fitted with a safety valve as per Rule Compressors fitted with Safety Valves Can the internal surfaces of the receivers be examined Yes What means are provided for cleaning their inner surfaces detachable heads for cleaning with Soda Is there a drain arrangement fitted at the lowest part of each receiver Yes

RETAIN

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W500-0069

IS A DONKEY BOILER FITTED? Yes If so, is a report now forwarded? Yes

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS					
" " COVERS water passages	21.1.21 to 16.2.21	–	50 lb ✓	J.E.	
" " JACKETS	11.2.21 to 11.3.21	–	50 lb ✓	J.E.	
" PISTON WATER PASSAGES	14.3.21 to 4.4.21	–	50 lb ✓	JE	
MAIN COMPRESSORS—1st STAGE	✓				
" 2nd "	✓				
" 3rd "	14.3.21 to 21.3.21	1000 lb	2000 lb ✓	JE	
AIR RECEIVERS-STARTING		356 lb	712 lb ✓	See Separate Report	
" INJECTION	11.3.21 to 21-6-21	1000 lb	2000 lb ✓	JE	
AIR PIPES	✓				
FUEL PIPES	✓				
FUEL PUMPS	✓				
SILENCER	✓				
" WATER JACKET	✓				
SEPARATE FUEL TANKS	✓				

PLANS. Are approved plans forwarded herewith for shafting Yes Receivers ✓ Separate Tanks ✓
(If not, state date of approval)

SPARE GEAR See Separate List

The foregoing is a correct description,
For HARLAND & WOLFF, LTD.
J. C. Green per AG.
MANAGER FINNIESTON WORKS Manufacturer.

Dates of Survey while building — During progress of work in shops: 1920 Jan 27 Feb 4 Mar 23 Ap 12.17.22 May 4.24 June 2.15 July 15 Sep 24 Oct 5 Nov 3.19 Dec 2 (1921) Jan 24.27 Feb

During erection on board vessel: Feb 4.7.8.11.15.16.18.21.28 Mar 3.9.10.11.14.15.18.21.23.24.25.30 Ap 4.5.15.18.26 May 3.11.18.26 Jun 9.16.21 Aug 10 Sep 1.13 Nov 3.10.18.21 Dec 13.22.26

Total No. of visits 64.

Dates of Examination of principal parts—Cylinders 9.3.21 Covers 16.2.21 Pistons 4.4.21 Rods 4.4.21 Connecting rods 24.1.2

Crank shaft 21.2.21 Thrust shaft 10.3.21 Tunnel shafts 10.3.21 Screw shaft 10.3.21 Propeller 10.3.21 Stern tube 10.3.21 Engine seatings 20-5-2

Engines holding down bolts 25-11-21 Completion of pumping arrangements 22-12-21 Engines tried under working conditions 22-12-21

Completion of fitting sea connections 20-5-21 Stern tube 20-5-21 Screw shaft and propeller 20-5-21

Material of crank shaft Steel Identification Mark on Do. Yo 604 Lloyds 2.21 J.E. Material of thrust shaft Steel Identification Mark on Do. O See below

Material of tunnel shafts Steel Identification Marks on Do. ⊗ See below Material of screw shafts Steel Identification Marks on Do. △ See below

Is the flash point of the oil to be used over 150° F. Yes ✓

Is this machinery duplicate of a previous case Yes ✓ If so, state name of vessel M.S. Leighton ✓ (No 603).

General Remarks (State quality of workmanship, opinions as to class, &c. O:- 81332 Lloyds 4999 591A1 J.P. 81331 Lloyds 4998 J.P. △:- 401A 81275 Lloyds 2166 W.G.H. 81101 Lloyds 12521A 63RFM SPARE 81102 Lloyds 12521A1 64RFM

⊗:- 81311 Lloyds 4822 J.P. 81402 Lloyds 124 542A1 RFM 81404 Lloyds 4972 755A1 J.P. 81105 Lloyds 78 RFM 1343 Lloyds 5010 476A J.P. 81106 Lloyds 78 471A1 R.F.M. 81344 Lloyds 5000 476A1 J.P. 81517 Lloyds 142 948A1 R.F.M. 1403 Lloyds 4971 755A J.P. 81516 Lloyds 141 R.F.M.

The materials and workmanship are good. The machinery has been constructed under Special Survey in accordance with the Rules and approved Plans; the machinery has been fitted on board in a satisfactory manner, tried under working conditions and found efficient and is eligible in our opinion to be classed with record of ✠ L.M.C 12-21.

The amount of Entry Fee ...	£ 6 : 0	When applied for,	
Special	£ 107 : 15	10/1/ 1922	
Donkey Boiler Fee ...	£ :	When received,	
Travelling Expenses (if any)	£ :	9. 3. 1922	

J. Sellers for self & J. Hasthope.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned + L M C 12.21.

Glasgow.

(The Surveyors are requested not to write on or below the space for Committee's Minute.)

Certificate (if required) to be sent to

GLASGOW 10 JAN 1922

CERTIFICATE WRITTEN 12/1/22

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