

REPORT ON OIL ENGINE MACHINERY.

No. 42568

Received at London Office

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Date of writing Report 17 March 1923 When handed in at Local Office 19 March 1923 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 9th Mar 1921 Last Survey 16th March 1923
 Reg. Book. Number of Visits 74
 on the Single } Screw vessels M/s "ARABY"
 Triple }

Tons { Gross 4936
 Net 3844

Master Built at Dumbarton By whom built A. Macmillan & Co. Yard No. 630.D When built 1923.

Engines made at Glasgow By whom made Harland & Wolff Ltd. Engine No. 631 When made 1923.

Donkey Boilers made at Annan By whom made Cochran & Co. Boiler No. 8752 When made 1923

Brake Horse Power Owners DAVID MACIVER & Co. LTD. Port belonging to Liverpool.

Nom. Horse Power as per Rule 489 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 LBS/SQ No. of cylinders 6 No. of cranks 6 Diameter of cylinders 29 1/2" 740 M/M

Length of stroke 1500" 59 1/2" Revolutions per minute 90 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) 1004 M/M

Distance between centres of main bearings 1450 Is a flywheel fitted YES Diameter of crank shaft journals as per Rule 470 M/M as fitted 485 M/M

Diameter of crank pins 485 M/M Breadth of crank webs as per Rule 625 SOLID as fitted 890 BUILT Thickness of ditto as per Rule 263 M/M as fitted 310 M/M

Diameter of flywheel shaft as per Rule 470 M/M as fitted 485 M/M Diameter of tunnel shaft as per Rule 13 1/8" BARE as fitted 13 1/2" Diameter of thrust shaft as per Rule 13 3/4" as fitted 14 1/4"

Diameter of screw shaft as per Rule 14" as fitted 14 3/4" 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

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 6'-0" Diameter of propeller 15'-3"

Pitch of propeller 12'-6" MEAN (11'-9" to 13'-3") No. of blades 4 state whether moveable YES Total surface 7.6 square feet TOP 60 M/M BOTTOM 45 M/M

Method of reversing AIR Is a governor or other arrangement fitted to prevent racing of the engine when decelerated YES Thickness of cylinder liner 80 M/M

Are the cylinders fitted with safety valves YES Means of lubrication SIGHT FORCED 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

EXHAUST FROM FUNNEL No. of cooling water pumps 2 SEA 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 engine 2 DUPLEX Diameter of ditto 6" Stroke 6"

Can one be overhauled while the other is at work YES No. of auxiliary pumps connected to the main bilge lines 3 How driven ELECTRIC MOTOR

Sizes of pumps 2-6x6" & 1, 10x10" No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps: In engine room 1-5" DIRECT 3-2 1/2" COFFERDAM 2-4 1/2" 2-2 1/2" DRAIN HAT. 2-3 1/2" FROM CHEST

and in holds, etc. 6-3 1/2" " HULLS 4-3 1/2" AFT HOLDS No. of ballast pumps 1 How driven ELECTRIC MOTOR Sizes of pumps 10x10" DUPLEX

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 YES 4 1/2" 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 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 ABOVE 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 1 No. of stages 3 Diameters 750x675x150 Stroke 460 M/M Driven by MAIN ENGINE

No. of auxiliary air compressors 2 No. of stages 5 Diameters 360x315x72 Stroke 230 M/M Driven by ELECTRIC MOTOR

No. of small auxiliary air compressors 1 No. of stages 2 Diameters 106x34 Stroke 80 M/M Driven by STEAM

No. of scavenging air pumps Diameter Stroke Driven by

Diameter of auxiliary Diesel Engine crank shafts as per Rule 167 M/M as fitted 170 M/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 6 Internal diameter 295 M/M Cubic capacity of each 3 off 150-litre 5 1/2" 55"

Material STEEL Seamless, lap welded or riveted longitudinal joint SEAMLESS Range of tensile strength 28/32

Thickness 6" working pressure by Rules 1430 LBS/SQ No. of starting air receivers 2 (separate R/M) internal diameter 6'-0 3/8"

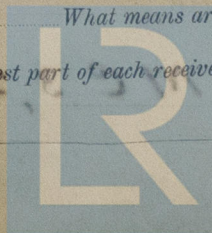
total cubic capacity 1076 Cubic ft. Material STEEL Seamless, lap welded or riveted longitudinal joint Riveted D.B.S.

Range of tensile strength SHELL ENDS 27/32 26/30 thickness 1 1/32 1 1/32 1 1/32 Working pressure by rules 356 LBS/SQ Is each receiver, which can be isolated,

fitted with a safety valve as per Rule with safety valve Can the internal surfaces of the receivers be examined YES What means are provided for cleaning their

DETACHABLE HEADS IN SMALL RECEIVERS (BLAST) (STARTING) Is there a drain arrangement fitted at the lowest part of each receiver YES

inner surfaces MANHOLE DOORS "LARGE" (STARTING)



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IS A DONKEY BOILER FITTED? YES

If so, is a report now forwarded? YES.

HYDRAULIC TESTS:— CERTIFICATE N° 16133. LLOYDS TEST 206 LBS/IN 25/10/22 H.C.F.

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	25/10/22 to 1/12/22	15 lb/in	50 lb/in	Hmb	
COVERS	25/10/22 to 30/10/22	"	50 lb/in	Hmb	
JACKETS	27/9/22 to 15/12/22	"	50 lb/in	Hmb	
PISTON WATER PASSAGES	12/10/22		2000 lb/in	Hmb	
MAIN COMPRESSORS—1st STAGE	14/11/22		500 lb/in	Hmb	
2nd " COOLER	17/11/22		150 lb/in	Hmb	
3rd " COOLER	5/12/22 & 6/12/22	356 lb/in	595 lb/in	S.O.K. H.P.S.	Belfast Report N° 8951
AIR RECEIVERS—STARTING	30/10/22 & 30/11/22		2000 lb/in		A.V. N° 444, 5, 6, 7, 8, 9.
INJECTION	17/1/23 to 6/2/23	356 lb/in	712 lb/in	Hmb	
AIR PIPES	22/2/23		30 lb/in		
FUEL PIPES—SUCTION					
FUEL PUMPS					
SILENCER					
WATER JACKET			7 1/2 lb/in		
SEPARATE FUEL TANKS	12/12/22				

PLANS. Are approved plans forwarded herewith for shifting Sent with Log N° 630 Receivers YES.

SPARE GEAR See attached list of all spare supplied to the vessel.

The foregoing is a correct description,

FOR HARLAND & WOLFF, LTD.

J. C. Grose

Manufacturer.

MANAGER FINNISTON WORKS per at.

Dates of Examination of principal parts—Cylinders 25/10/22 Covers 23/11/22 Pistons 27/9/22 Rods 27/9/22 Connecting rods 16/1/23
Crank shaft 19/10/22 Thrust shaft 21/11/22 Tunnel shafts 21/11/22 Screw shaft 8/11/22 Propeller 5/11/22 Stern tube 2/11/22 Engine seatings 5/2/23
Engines holding down bolts 20/2/23 Completion of pumping arrangements 12/3/23. Engines tried under working conditions 16/3/23.
Completion of fitting sea connections 28/12/22 Stern tube 28/12/22 Screw shaft and propeller 28/12/22
Material of crank shaft S Identification Mark on Do. N° 631 Hmb. Material of thrust shaft S Identification Mark on Do. T 1473 6230
Material of tunnel shafts S Identification Marks on Do. SEE UNDER Material of screw shafts S Identification Marks on Do. WORKING T 881 5874
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 NEW engine N° 630.

General Remarks

(State quality of workmanship, opinions as to class, &c.)

TUNNEL SHAFTS:— (1) 1092 LLOYDS W.G.H. 3424. (2) 1088 LLOYDS P.M.G. 5965. (3) 1089 LLOYDS W.G.H. 8418. (4) T1093 LLOYDS (5) 882 LLOYDS W.G.H. 3259

This machinery has been built under special survey and in accordance with the rules & approved plans, the materials and workmanship are sound and good. After being fitted on board in an efficient manner a full power trial was carried out and everything found satisfactory, and is eligible in my opinion to be classed with record of L.M.C. 3-23.

It is suggested that this vessel is eligible for THE RECORD. + LMC 3.23. CL. Oil Engines. 4 SC. SA. 6 Cy. 29 1/8" - 59 1/16" 489 NHP. DB 100th.

The amount of Entry Fee ... £ 6 : 0

Special ... £ 95 : 7

Donkey Boiler Fee ... £ :

Travelling Expenses (if any) £ :

Committee's Minute

Assigned + LMC 3, 23.

MACHINERY CERT. WRITTEN

28 MAR 1923



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