

REPORT ON OIL ENGINE MACHINERY.

No. 28772

Date of writing Report 19 When handed in at Local Office 18th March 1924 Port of SUNDERLAND Received at London Office MON. 24 MAR 1924

No. in Survey held at SUNDERLAND. Date, First Survey 21st March 1922 Last Survey 17th March 1924

Reg. Book. on the Single Twin Triple Screw vessels "PACIFIC SHIPPER" Number of Visits 69

Master Built at Sunderland By whom built Messrs. Dwyer & Co. Ltd. No. 577 When built 1924

Engines made at Sunderland By whom made Messrs. Dwyer & Co. Ltd. Engine No. 561 When made 1924

Donkey Boilers made at Newcastle, Annan By whom made Messrs. Hawthorn Leslie & Co. Ltd. Boiler No. 9207 When made 1924

Brake Horse Power 2900 Owners Furness, Withy & Co. Ltd. Port belonging to London

Nom. Horse Power as per Rule 498 Is Refrigerating Machinery fitted for cargo purposes YES Is Electric Light fitted YES

OIL ENGINES, &c.—Type of Engines Sundford opposed piston, Solid Injection 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 40 atm (568 lb) No. of cylinders 4 No. of cranks 4 three throw Diameter of cylinders 580 mm

Length of stroke 2 x 1160 mm Revolutions per minute 87 Means of ignition Jump. of compression Kind of fuel used Crude oil

Is there a bearing between each crank YES Span of bearings (Page 92, Section 2, par. 7 of Rules) 1050 mm 41 3/8"

Distance between centres of side con. rods 1330 mm 52 3/8" Is a flywheel fitted YES Diameter of crank shaft journals as per Rule 400 mm as fitted 430 mm

Diameter of crank pins 460 mm Breadth of crank webs as per Rule shrunk 650 mm as fitted Thickness of ditto as per Rule shrunk 260 mm as fitted

Diameter of flywheel shaft as per Rule 400 mm as fitted Diameter of tunnel shaft as per Rule 400 mm as fitted Diameter of thrust shaft as per Rule 400 mm as fitted

Diameter of screw shaft as per Rule 400 mm as fitted 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 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 If without liners, is the shaft arranged to run in oil YES

Type of outer gland fitted to stern tube none Length of stern bush 5'-10" Diameter of propeller 17'-0"

Pitch of propeller 15'-0" No. of blades 4 state whether moveable NO Total surface 91 square feet

Method of reversing Compressed air Is a governor or other arrangement fitted to prevent racing of the engine when disengaged YES Thickness of cylinder liners 1" reinforced

Are the cylinders fitted with safety valves YES Means of lubrication Forced 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 Funnel

No. of cooling water pumps 2 Is the sea suction provided with an efficient strainer which can be cleared within the vessel through funnel

No. of bilge pumps fitted to the main engines none Diameter of ditto — Stroke —

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

Sizes of pumps 40 ltrs per hour each No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 2 @ 2 1/2" and in holds, etc. Funnel with 1 @ 3" 2 deep tanks 2 each @ 5" No. of ballast pumps 1 How driven Steam, direct act? Sizes of pumps 300 ltrs per hour

Is the ballast pump fitted with a direct suction from the engine room bilges YES State size 9" Is a separate auxiliary pump suction fitted in Engine Room and size YES 3 1/2" Are all the bilge suction pipes fitted with roses TAIL PIPES 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 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 Top platform If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork YES

No. of main air compressors none No. of stages — Diameters — Stroke — Driven by —

No. of auxiliary air compressors 2 No. of stages 3 Diameters 11 1/2, 9 1/2, 3 1/2 Stroke 7" Driven by Steam cylinders 13 1/2" dia 7" stroke

No. of small auxiliary air compressors — No. of stages — Diameters — Stroke — Driven by —

No. of scavenging air pumps one Diameter 62" Stroke 41" Driven by Main Engine

Diameter of auxiliary Diesel Engine crank shafts as per Rule — as fitted — Are the air compressors and their coolers made so as to be easy of access YES

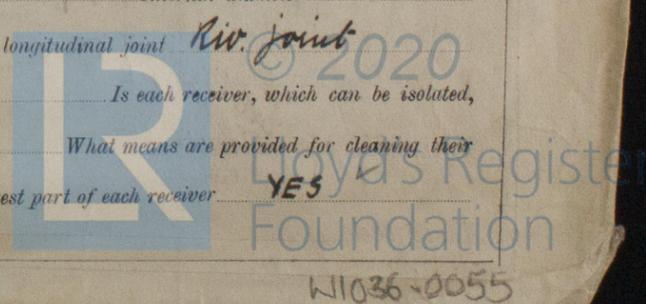
AIR RECEIVERS:—No. of high pressure air receivers NONE Internal diameter — Cubic capacity of each —

Material — Seamless, lap welded or riveted longitudinal joint — Range of tensile strength —

Thickness — working pressure by Rules — No. of starting air receivers 2 Internal diameter 3'-6"

Total cubic capacity 220 cu. ft. Material Steel Seamless, lap welded or riveted longitudinal joint Riv. joint

Range of tensile strength 28-32 thickness 1 1/4" Working pressure by rules 6/10 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 YES What means are provided for cleaning their inner surfaces Man hole 12" x 16" Is there a drain arrangement fitted at the lowest part of each receiver YES



IS A DONKEY BOILER FITTED? **YES, TWO.** If so, is a report now forwarded? **YES**

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	Soundness ascertained by inspection. Plain cylindrical form				
COVERS	None				
JACKETS	4.4.23 to 13.7.23	4 lbs	30 lbs	No 561 LLOYD TEST 30 lbs G.A.H. DATE	
PISTON WATER PASSAGES	11.1.23	30 lbs	100 lbs	No 561 LLOYD TEST 100 lbs G.A.H. 11.1.23	
MAIN COMPRESSORS—1st STAGE	None				
2nd	-				
3rd	-				
AIR RECEIVERS—STARTING	20.12.23, 27.12.23	600 lbs	800 lbs	No 578 LLOYD TEST G.A.H. DATE	
INJECTION	-				
AIR PIPES	13.7.23, 27.7.23	600 lbs	1000 lbs	No 561 LLOYD TEST 1000 lbs G.A.H. DATE	
FUEL PIPES	31.5.23	8000 lbs	12000 lbs	No 561 LLOYD TEST G.A.H. DATE	
FUEL PUMPS	12.3.24	8000	12000 lbs	No 561 LLOYD TEST 12.000 lbs G.A.H. 12.3.24	
SILENCER	Lagged with asbestos composition and open to atmosphere				
WATER JACKET	None				
SEPARATE FUEL TANKS	31.1.24	Nil	10 lbs	No 561 LLOYD TEST 10 lbs G.A.H. 31.1.24	

PLANS. Are approved plans forwarded herewith for shafting "EKNAREN" Receivers **YES** Separate Tanks **YES**

SPARE GEAR: Cylinder liner, 1 main piston, 12 piston rings, 2 cent. con. rod top end bearing with bolts 1 nut, 1 crank pin and bearing bolts 1 nut, 1 side cross head, 1 shot, 1 main bearing, 1 slide & nut, 1 bottom length crank shaft, 1 set of shaft comp. & bolts, 1 set tunnel shaft comp. bolts, 1 set wheel on cam shaft drive, 4 fuel valves 1 lever, 1 starting valve, 1 relief valve, 1 bearing pump delivery valve and discs, 1 bearing pump suction valve 1 disc, 1 fuel pump & 3 extra crams & pins, 1 propeller shaft, 1 propeller, 1 set bearings, valves 1 pist. rings for air compressors, 1 set spares for oil burning unit, 1 set hinge pump valves, 1 set valves for transfer pump, assorted bolts & nuts, 2...

The foregoing is a correct description,

WILLIAM DOXFORD & SONS, Limited.

Manufacturer. *W. Doxford* Manager.

Dates of Survey while building: During progress of work in shops: 22/May, 21.23, Aug. 15, Sep. 26, Oct. 2, 19, 24, 25, 30, Nov. 9, 20, 27, Dec. 7, 14, 20, 23, Jan. 4, 11, 18, 24, 31, Feb. 5, 12, 19, 26, 27, 28, 29, 30, 31, March 6, 13, 20, 27, 28, 29, 30, 31, April 6, 13, 20, 27, 28, 29, 30, 31, May 6, 13, 20, 27, 28, 29, 30, 31, June 6, 13, 20, 27, 28, 29, 30, 31, July 6, 13, 20, 27, 28, 29, 30, 31, August 6, 13, 20, 27, 28, 29, 30, 31, September 6, 13, 20, 27, 28, 29, 30, 31, October 6, 13, 20, 27, 28, 29, 30, 31, November 6, 13, 20, 27, 28, 29, 30, 31, December 6, 13, 20, 27, 28, 29, 30, 31.

Dates of Examination of principal parts—Cylinders 31.5.23 Covers ✓ Pistons 11.1.23 Rods 11.1.23 Connecting rods 14.3.23 Crank shaft 9.12.21 Thrust shaft 14.3.23 Tunnel shafts 14.3.23 Screw shaft 15.10.23 Propeller 19.7.23 Stern tube 13.7.23 Engine seatings 15.1.23 Engines holding down bolts 28.1.24 Completion of pumping arrangements 15.2.24 Engines tried under working conditions 6.3.24 Completion of fitting sea connections 20.12.23 Stern tube 20.12.23 Screw shaft and propeller 28.1.24 Material of crank shaft *Steel* Identification Mark on Do. 561 AC 9.12.21 Material of thrust shaft *Steel* Identification Mark on Do. 561 GAH 14 Material of tunnel shafts *Steel* Identification Marks on Do. 561 GAH 14-3-23 Material of screw shafts *Steel* Identification Marks on Do. 561 GAH 15 Is the flash point of the oil to be used over 150° F. **YES**

Is this machinery duplicate of a previous case **YES, MAIN ENGINES** If so, state name of vessel "Dominion Miller"

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery of this vessel has been built under special survey, the materials & workmanship are sound and good. The main & all aux engines have been fitted on board in a satisfactory manner and have been tried under working conditions with satisfactory results. The machinery renders the vessel eligible in my opinion to be rated 4-L.M.C. 3.24 oil Engine. The propeller and fastenings were examined in dry dock at Messrs Smiths & Co North Shields on March 14th and found satisfactory.

Please return plans for reference in dealing with sister vessel.

The amount of Entry Fee ... £ 5 : :
Special ... £ 99 : 14 : 10th March 1924
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 10th March 1924
When received, 22nd March 1924

Committee's Minute
Assigned

+ Lmb. 3.24
oil engines Ck

G.A.H.A.H.
Engineer Surveyor to Lloyd's Register of Shipping.



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