

REPORT ON OIL ENGINE MACHINERY.

No. 1854

Received at London Office

MON JUL 20 1920

Date of writing Report 24th July 1920 When handed in at Local Office 24th July 1920 Port of Barrow-in-FurnessNo. in Survey held at Barrow-in-Furness Date, First Survey 4th Nov 1919 Last Survey 14th July 1920
Ref. Book. Number of Visits 80on the ~~Single~~ ~~Twin~~ ~~Triple~~ Screw vessel "MARINULA" ex "Santa Margherita" Tons Gross 4512 Net 4068

Master Built at Barrow-in-Furness By whom built Vickers Ltd Yard No. 445 When built 1916

Engines made at Barrow-in-Furness By whom made Vickers Ltd Engine No. 445 When made 1916

Monkey Boilers made at Annan By whom made Cochran & Co Boiler No. When made 1916

Stroke Horse Power Owners Anglo-Saxon Petroleum Co Ltd Port belonging to London

Nom. Horse Power as per Rule 500 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Type of Engines Twin Screw Diesel 2 or 4 stroke cycle 4 Single or double acting Single
 Maximum pressure in cylinders 445 lbs per sq in No. of cylinders 16 No. of cranks 16 Diameter of cylinders 20 7/8"
 Length of stroke 33" Revolutions per minute 140 Means of ignition Diesel type of Engine Kind of fuel used Spec. gas 94 at 60°F
Kail point 200°F
 Is there a bearing between each crank Yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 30.75"
 Distance between centres of main bearings 43.5" Is a flywheel fitted Yes on crank shaft coupling Diameter of crank shaft journals as per Rule 12.9" Solid
 as fitted 13.5" Hollow
 Diameter of crank pins 13.5" Breadth of crank webs as per Rule 17.5 Thickness of ditto as per Rule 7"
 as fitted 18"
 Diameter of flywheel shaft as per Rule 10.6 Solid Diameter of tunnel shaft as fitted None Diameter of thrust shaft as per Rule 11.13" Solid
 as fitted 11 1/4" Hollow (Approved)
 Diameter of screw shaft as per Rule 11.34" Solid Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes
 as fitted 11 1/8" Hollow (Approved) If the liner is in more than one length are the joints burned Yes
 Is the after end of the liner made watertight in the propeller boss Yes If without liners, is the shaft arranged to run in oil Yes
 Does the liner do 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
 Are two liners fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 3'-6", A bracket bush 4'-3" Diameter of propeller 11'-3"
 Type of outer gland fitted to stern tube Yes Diameter of propeller 10'-2" No. of blades 3 state whether moveable Yes Total surface 3.2 square feet
 Eccentric movement of levers suitably engaged by Separate cams of levers suitably engaged by Thickness of cylinder liners 2 1/8"
 Method of reversing on servo-motor Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes
 or by hand. Are the cylinders fitted with safety valves Yes Means of lubrication Forced Are the exhaust pipes and silencers water cooled or lagged with
 conducting material Water cooled the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine
 Exhaust pipes led up funnel No. of cooling water pumps 2 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 Nil Diameter of ditto Yes Stroke Yes
 Can one be overhauled while the other is at work Yes No. of auxiliary pumps connected to the main bilge lines Four How driven By electric motor
 Nos of pumps Ballast pumps, 300 tons No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 4-3 1/2"
 in holds, etc. 1-5" in forehold 2-3 1/2" in fore pump room No. of ballast pumps Two How driven By electric motor Sizes of pumps Capacity 300 tons/hr.
 Is the ballast pump fitted with a direct suction from the engine room bilges Yes State size 8" Is a separate auxiliary pump suction fitted in
 engine room and size Yes, each bilge pump 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 Valves Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates Yes, or added to floor plates
 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 None Is it fitted with a watertight door Yes
 Is it ked from Yes 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 Two No. of stages 3 Diameters 13"-8.4"-4.5" Stroke 12" Driven by Aux^d Diesel Eng.
 No. of auxiliary air compressors Nil No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓
 No. of small auxiliary air compressors One No. of stages 3 Diameters 8"-6 3/4"-2" Stroke 6" Driven by Petter Engine
 No. of scavenging air pumps Nil Diameter ✓ Stroke ✓ Driven by ✓
 Diameter of auxiliary Diesel Engine crank shafts as per Rule 6.24" Are the air compressors and their coolers made so as to be easy of access Yes
 as fitted 6.5"

RECEIVERS:—No of high pressure air receivers 8 Internal diameter 30" Cubic capacity of each 50 cub. ft.
 Material Steel Seamless, lap welded or riveted longitudinal joint Riveted Range of tensile strength 28/32 tons
 Thickness 7/8" Working pressure by Rules 2 off 738 lbs 6 off 680 lbs No. of starting air receivers Same as above Internal diameter ✓
 Total cubic capacity 400 cub. ft. Material ✓ Seamless, lap welded or riveted longitudinal joint ✓
 Range of tensile strength ✓ thickness ✓ Working pressure by rules ✓ 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
 internal surfaces Access through 16" x 12" manhole Is there a drain arrangement fitted at the lowest part of each receiver Yes

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	22-1-20 to 3-2-20 (11 visits)	4 1/2 lbs.	1000 lbs.	Tested to 1000 lbs. J.H.	Also four spares from 9/10 to 14/10
" " COVERS	21-1-20 to 16-4-20 (16 ")	15 "	30 "	Tested to 30 lbs. J.H.	
" " JACKETS	4-12-19, 16-4-20	15 "	30 "	" "	
" " PISTON WATER PASSAGES	Not water cooled		✓	✓	
MAIN COMPRESSORS—1st STAGE	18-11-19	30 lbs.	45 lbs.	Tested to 45 lbs. J.H.	
" " 2nd "	"	140 lbs.	340 "	Tested to 340 lbs. J.H.	
" " 3rd "	27-2-20	600 lbs.	1200 "	Tested to 1200 lbs. J.H.	
AIR RECEIVERS—STARTING	9-2-20, 2-4-20	600 lbs.	800 lbs.	Lloyd's Test 800 lbs. W.P. 600 lbs. J.H.	
" " INJECTION	✓	✓	✓	✓	
AIR PIPES	9-2-20	600 lbs.	800 lbs.	Tested to 800 lbs. J.H.	
FUEL PIPES	8-12-19 to 10-4-20	4000 lbs.	6000 lbs.	Tested to 6000 lbs. J.H.	
FUEL PUMPS	21-1-20	4000 lbs.	6000 lbs.	Tested to 6000 lbs. J.H.	
SILENCER	16-4-20	15 lbs.	30 lbs.	✓	
" " WATER JACKET	16-4-20	15 "	30 lbs.	✓	
SEPARATE FUEL TANKS	13-12-19	Head of oil	10 lbs.	✓	

PLANS. Are approved plans forwarded herewith for shafting. Yes.

Receivers

Yes.

Separate Tanks

No.

SPARE GEAR 5 bfr. covers, 2 being complete with all valves etc. fitted; 4 cyl. liners, 4 pistons complete & 11: piston rings, 1 piston rod, 2 crosshead shoes, 6 top end brasses with bolts & nuts, 4 bottom end brasses with bolts & nuts, 2 main bearing bolts, 1 set of crank shaft coupling bolts & 1 set of intermediate shaft coupling bolts, 8 cfr. cover studs, 16 fuel oil spray valves & 49 nozzles, 8 inlet valves & 16 exhaust valves, 4 inlet valve boxes & 8 exhaust valve boxes, 32 spray valve springs, 1 each relief valve & air starting valve, 16 each springs for relief & air starting valves, 32 springs for inlet & exhaust valves, 2 each of inlet & exhaust ahead & altern. cams, each fuel cam pieces ahead & altern. Assorted bolts & nuts, piping for air starting & fuel oil, armoured hose. Compressors: 1 cyl. liner 5 cyl. liners (bottom) 2 cyl. covers, 4 pistons, 60 piston rings, 2 top end brass & 2 bottom end brasses with bolts & nuts, 1 conn. rod, 1 compressor conn. rod, 1 inlet valve box, 2 exhaust valve boxes, 7 inlet valves & 8 exhaust valves, 16 springs for inlet & exhaust valves, 2 compressor pistons & 98 compressor piston rings for all stages, 8 each air starting & relief valve springs, 1 fuel oil spray valve body & 20 nozzles, 220 compressor valves for all stages & 16 springs, 2 each inlet & exhaust valve cams, 12 fuel oil cam pieces. The foregoing is a correct description, also complete sets of working parts for both main & compressor engines fuel oil pumps.

Jan. 1. 1920. Manufacturer.

Dates of Survey while building	During progress of work	21, 22, 24, 27, 28, 29, 30, 31. Feb. 2, 3, 9, 16, 21, 27. Mar. 2, 10, 15, 17, 25, 30. Apr. 7, 8, 9, 10, 12, 13, 14, 16, 21, 22, 24, 27, May 3, 4, 7, 12, 13, 14, 17, 18, 19, 20, 21, 26, June 7, 10, 14, 16, 25, 28, July 2, 14, 17.
Total No. of visits	80	

Dates of Examination of principal parts—Cylinders 22/1/20 to 3/2/20. Covers 24/1/20 to 16/4/20. Pistons 10/3/20 to 12/4/20. Rods 4-12-19. Connecting rods 4-12-19.													
Crank shaft	12/1/20 14/1/20.	Thrust shaft	12/1/20	Tunnel shafts	✓	Screw shaft	12/1/20	Propeller	12/1/20	Stern tube	12/1/20	Engine seatings	9-4-20
Engines holding down bolts		9-4-20		Completion of pumping arrangements		20-5-20		Engines tried under working conditions		21-5-20, 16-7-20			
Completion of fitting sea connections		✓		Stern tube		✓		Screw shaft and propeller		✓			
Material of crank shaft		Steel		Identification Mark on Do.		LLOYD'S N°176 J.H.		Material of thrust shaft		Steel		Identification Mark on Do.	
Material of tunnel shafts		✓		Identification Marks on Do.		✓		Material of screw shafts		Steel		Identification Marks on Do.	
												✓	

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

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.) The Machinery of this vessel has been examined throughout, & the various parts compared & tested with the plans submitted as far as practicable. It has been thoroughly overhauled & readjusted as per Rpt. No 1854, tried under working conditions & found satisfactory. In my opinion it is eligible to be classed I.M.C. 7-20, in the Register Book.

The amount of Entry Fee	£	When applied for,
Special	£ 40-0-0	24th Apr 1920
Donkey Boiler Fee	£	When received,
Travelling Expenses (if any)	£	26th May 1920

Committee's Minute

Assigned

John Houston
Engineer Surveyor to Lloyd's Register of Shipping.



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