

REPORT ON OIL ENGINE MACHINERY.

1111 MAR 29 1923
No. 425853

Received at London Office

Date of writing Report 20th March 1923 When handed in at Local Office 24th March 1923 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 16. 9. 1919 Last Survey 16. 3. 1923
 Reg. Book. 8781 on the Single Twin Triple Screw vessels "DUMANA" Number of Visits 140
 Master H. Stockwell Built at Glasgow By whom built Barclay Curle & Co. Ltd Yard No. 593 When built 1923
 Engines made at Glasgow By whom made North British Diesel Engine Works (1922) Ltd Engine No. 28 When made 1923
 Donkey Boiler made at Annan By whom made Bochran & Co., Annan Ltd Boiler No. 8787 When made 1923
 Brake Horse Power 1750 Each Engine Owners British India Steam Navigation Co. Ltd Port belonging to Glasgow
 Nom. Horse Power as per Rule 963 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

IL ENGINES, &c.—Type of Engines Twin Screw Diesel 2 or 4 stroke cycle 4 Single or double acting Single
 Maximum pressure in cylinders 450 lbs. No. of cylinders 8 Each Engine No. of cranks 8 Each Engine Diameter of cylinders 26 1/2"
 Length of stroke 47" Revolutions per minute 96 Means of ignition Compression Kind of fuel used Heavy Oil
 Is there a bearing between each crank Yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 35"
 Distance between centres of main bearings 5' 7" Is a flywheel fitted Yes Diameter of crank shaft journals as per Rule 16 5/8"
 Diameter of crank pins 16 5/8" Breadth of crank webs as per Rule 22.1" Thickness of ditto as per Rule 9.3"
 Diameter of flywheel shaft as per Rule 16 5/8" Diameter of tunnel shaft as per Rule APPROVED 13.187" Diameter of thrust shaft as per Rule APPROVED 17"
 Diameter of screw shaft as per Rule APPROVED 17 1/4" 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 Red lead paint
 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 None Length of stern bush 5' 0" Diameter of propeller 15' 0"
 Pitch of propeller 14' 7" to 15' 6" No. of blades 3 state whether moveable Yes Total surface 66.3 square feet
 Method of reversing Direct—traversing Is a governor or other arrangement fitted to prevent racing of the engine when declutched — Thickness of cylinder liners 2 1/2"
 Are the cylinders fitted with safety valves Yes Means of lubrication Forced Right Feed Are the exhaust pipes and silencers water cooled or lagged with Water Cooled—pipes lagged
 non-conducting material Manifold If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Exhaust led up funnel
 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 None Diameter of ditto — Stroke —
 Can one be overhauled while the other is at work — No. of auxiliary pumps connected to the main bilge lines 5 How driven Electrically
 Sizes of pumps 2.50, 1.60, 1.100, 1.200 tons No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 306" 26 5/2" 705"
 and in holds, etc. 2 @ 3 1/2" to EACH HOLD + 1 @ 2 1/2" to TUNNEL WELL No. of ballast pumps One How driven Electrically Sizes of pumps 200 tons
 Is the ballast pump fitted with a direct suction from the engine room bilges Yes State size 6" Is a separate auxiliary pump suction fitted in with rose plates
 Engine Room and size 6" Are all the bilge suction pipes fitted with roses with roses fitted 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 by hand Bridge Deck by Electric Gear. 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 Each Engine No. of stages 3 Diameters 17 1/2" 16 5/8" 7 1/2" Stroke 27 1/16" Driven by Main Engines
 No. of auxiliary air compressors Two No. of stages 3 Diameters 17" 14" 4" Stroke 11 1/2" Driven by Electric Motor
 No. of small auxiliary air compressors Three No. of stages 3 Diameters one 8 1/2" 6 1/2" 2" Stroke 9" Driven by 6 cpl. Aux. Diesel Eng.
 No. of scavenging air pumps None Diameter — Stroke — Driven by 6 cpl. Aux. Diesel Eng.
 Diameter of auxiliary Diesel Engine crank shafts as per Rule 6.6" Are the air compressors and their coolers made so as to be easy of access Yes
 as fitted 6 5/8"

AIR RECEIVERS:—No. of high pressure air receivers Six Internal diameter 2 - 16 1/2" Cubic capacity of each 2 @ 14.2 c.f.
 material Steel Seamless, lap welded or riveted longitudinal joint Seamless Range of tensile strength 28/32 tons
 thickness 5/8" working pressure by Rules 1095 + 971 No. of starting air receivers Four Internal diameter 5' 9"
 Total cubic capacity 2 @ 335 c.f. Material Steel Seamless, lap welded or riveted longitudinal joint riveted Longitudinal Joint
 Range of tensile strength 28/32 tons thickness 1 1/2" Working pressure by rules 350 lbs. per sq. in. Is each receiver, which can be isolated, fitted with a safety valve as per Rule Double Safety Can the internal surfaces of the receivers be examined Yes What means are provided for cleaning their inner surfaces Manhole for access 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? Glasgow Rpt. N° 71506 herewith

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS					
COVERS	12-6-22 TO 23-11-22	450 LBS.	900 LBS.	H.C., H.C.P., J.D.B.	
JACKETS	1-9-22 TO 27-9-22	15 "	30 LBS.	H.C., A.H.H., and H.H.C.	
PISTON WATER PASSAGES	7-9-22 TO 30-11-22	15 "	30 LBS.	H.C.P., and H.H.C.	
MAIN COMPRESSORS—1st STAGE		60 "	Line examined H.C.		
2nd		225 "	" "	H.C.	
3rd	2-7-20	1000 "	1500 LBS.	H.C.	
AIR RECEIVERS—STARTING	6-10-21	350 LBS.	613 LBS.	A.B.	
INJECTION	26-10-22 TO 23-11-22		2000 LBS.	H.C. & H.C.P.	
AIR PIPES (STARTING)	7-10-22 TO 19-2-23	350 LBS.	1050 LBS.	H.C., H.C.P., J.D.B.	
(HIGH PRESSURE)	7-10-22 TO 1-3-23	1000 "	3000 LBS.	H.C.P.	
FUEL PIPES	7-10-22 TO 1-3-23	" "	3000 LBS.	H.C.P.	
FUEL PUMPS	8-12-22		2000 LBS.	H.C.P.	
SILENCER					
WATER JACKET					
SEPARATE FUEL TANKS	10-11-21		15 LBS.	H.C.	

PLANS. Are approved plans forwarded herewith for shafting (Int., Thrust & Propeller shafts herewith. C.S. for Domala (dup) approved 28-11-18. Receivers No. 2, see copy of Southamptn Separate Tanks. Yes. (If not, state date of approval.)

SPARE GEAR 2 cylinder covers complete for the main engines, with all valves, valve seats, springs, etc.; one complete set of valves, valve seats, springs etc., for one cyl. of the main and aux. Diesel engines, and fuel valves for half the number of cylinders of each engine. 1 piston complete, all piston rings, studs, and nuts for the main engines; one set of piston rings for one piston of the main and aux. Diesel engines. 1 complete set of main skew wheels for one main engine. 2 Con. rod top end bolts & nuts for main and aux. Diesel engines. 2 Con. rod bottom end bolts and nuts for main & aux. Diesel engines. 2 main bearing bolts & nuts for main & aux. Diesel engines. 1 set of coupling bolts for crank and intermediate shafts. Remaining spare gear as per Rule Requirements, and a considerable quantity in excess of requirements.

The foregoing is a correct description.

J. MacLagan

Manufacturer.

Dates of Survey while building	During progress of work in shops - - -	1919 Sep 16-23 Nov 11-14 1920 Feb 12-18 25 Mar 18-21 Apr 1-14 19 21 May 5-19 28 Jun 2-9 17 23 25 Jul 4-29 Aug 4-7 28 30 Oct 8-13 Nov 22 Dec 1-5 13 15 1921 Jan 19-24 Feb 16-22 Mar 2-17 24 Apr 5-21 May 16-23 Jun 2-7 Jul 4-6 28 Aug 31 Sep 8 Oct 13 17 27 Nov 14 24 29 Dec 1-5 13 15 1922 Jan 11-13 23 Feb 6-8 10 14 16 22 28 Mar 5-20 24 27 31 Apr 5-10 20 May 3-9 25 Jun 5-12 20 26 27 28 30 Jul 3-4 12 26 Aug 2-9 14 18 21 23 24 25 26 27 28 29 30 31 Sep 1-2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 Oct 1-2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 Nov 1-2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 Dec 1-2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
	During erection on board vessel - - -	31 Sep 2-4 7 12 13 14 20 22 27 Oct 3-18 22 26 31 Nov 7-10 16 17 20 23 30 Dec 4-8 12 14 26 1923 Jan 10-17 23 26 Feb 1-6 12 26 28 Mar 1-5 7 8 12 15
	Total No. of visits	140.

Dates of Examination of principal parts—Cylinders 20-6-22 to 20-9-22 Covers 12-6-22 to 23-11-22 Pistons 7-9-22 to 12-12-22 Rods 7-9-22 to 12-12-22 Connecting rods 7-9-22 to 12-12-22

Crank shaft 18-9-22 12-12-22 Thrust shaft 18-10-22 Tunnel shafts 9-10-22 Screw shaft 31-8-22 Propeller 31-8-22 Stern tube 31-8-22 Engine seatings 12-12-22

Engines holding down bolts 26-2-23 Completion of pumping arrangements 28-2-23 Engines tried under working conditions 16-16-3-23

Completion of fitting sea connections 20-11-22 Stern tube 20-11-22 Screw shaft and propeller 20-11-22

Material of crank shaft Steel Identification Mark on Do. 18-8-22 H.M.C. Material of thrust shaft Steel Identification Mark on Do. 18-8-22 H.M.C.

Material of tunnel shafts Steel Identification Marks on Do. 18-8-22 H.M.C. Material of screw shafts Steel Identification Marks on Do. 18-8-22 H.M.C.

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

Is this machinery duplicate of a previous case? Yes, except Main Compressor driven off main engine in present case. If so, state name of vessel T.S.M.V. "Domala" (N° 26). Gls. Rpt. N° 71576.

General Remarks (State quality of workmanship, opinions as to class, &c. An Exhaust Heat Boiler (for supplying steam for cooking purposes) has been fitted in this vessel, and the safety valves adjusted under steam to 30 lbs. per sq. in.; arrangements have been made for the Exhaust gases to be passed through Boiler or bye-passed direct to funnel as required; approved plan of Boiler herewith.

Before proceeding on trials the vessel was placed in dry dock and the propellers and fastenings of all sea connections examined and found satisfactory.

The machinery of this vessel has been constructed under special survey in accordance with the Rules and approved plans; the materials and workmanship are good. The machinery has been examined under full working conditions and found satisfactory, and is eligible, in our opinion, for Classification and to have the Record L.M.C. 3. 23 in the Register Book.

The amount of Entry Fee	£ 6 : 0	When applied for,	23. 3. 23
Special Exhaust Heat Boiler (Gls. Rpt. N° 71576)	£ 123 : 3		
Donkey Boiler Fee	£ 4 : 4	When received,	24/4/23
Travelling Expenses (if any)	£ — : —		

Committee's Minute

Assigned + L.M.C. 3. 23.

MACHINERY CERT. WRITTEN 30/4/23. (dated 29/3/23)

H.B. Forster. Harry Clarke. Engineer Surveyor to Lloyd's Register of Shipping.

