

REPORT ON OIL ENGINE MACHINERY.

No. 29312

Received at London Office

30 SEP. 1926

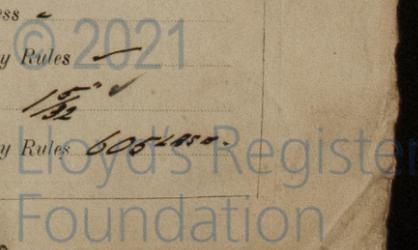
Date of writing Report 29 SEP. 1926 When handed in at Local Office 29 SEP. 1926 Port of Funderland
 No. in Survey held at Funderland Date, First Survey Jan 6 Last Survey Sep 28 1926
 Reg. Book. Single on the Triple Screw vessels MOTOR SHIP "SILVERASH" Number of Visits 117
 Built at Funderland By whom built Joseph L. Thompson & Sons Ltd Yard No. 555 When built 1916
 Engines made at Funderland By whom made Wm D. Ford & Sons Ltd Engine No. 157 When made 1926
 Donkey Boilers made at Annan By whom made Lockhart & Co Annan Ltd Boiler No. When made 1926
 Brake Horse Power 5000 Owners Silva Line, Ltd Port belonging to London
 Nom. Horse Power as per Rule 882 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Tons Gross 5299
 Net 3091

OIL ENGINES, &c.—Type of Engines Double Opposed Piston 2 of 4 stroke cycle 2 Single or double acting Single
 Maximum pressure in cylinders 40 Atmos No. of cylinders 4 Diameter of cylinders 180 (26 1/2) No. of cranks 4 Length of stroke 2 x 1350
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1220 m/m Is there a bearing between each crank Yes
 Revolutions per minute 90 Flywheel dia. 10-6 Weight 19 1/2 tons Means of ignition Compression Kind of fuel used CRUDE OIL TANPOUR
Crank Shaft, dia. of journals as per Rule 488 m/m as fitted 500 m/m Crank pin dia. 540 m/m Crank Webs Mid. length 220 m/m Thickness parallel to axis 310 m/m
 as per Rule 488 m/m as fitted 500 m/m Intermediate Shafts, diameter as per Rule 405 m/m as fitted 410 m/m Thrust Shaft, diameter at collars as per Rule 488 m/m as fitted 500 m/m
Flywheel Shafts, diameter as per Rule 488 m/m as fitted 500 m/m **Screw Shaft**, diameter as per Rule 444 m/m as fitted 460 m/m Is the screw shaft fitted with a continuous liner Yes
Tube Shafts, diameter as per Rule as fitted **Bronze Liners**, thickness in way of bushes as per Rule 21 m/m as fitted 23 m/m Thickness between bushes as per rule as fitted 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 junctions made by fusion through the whole thickness of the liner 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 Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft Yes
Propeller, dia. 18-3 Pitch 17-3 No. of blades 4 Material Bronze whether Moveable No Total Developed Surface 105 sq. feet
 Method of reversing Engines Compressed air Is a governor or other arrangement fitted to prevent racing of the engine when de-clutched Yes Means of lubrication Forced
 Thickness of cylinder liners 1 1/8 Are the cylinders fitted with safety valves Yes 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 FRESH WATER COOLING
Cooling Water Pumps, No. 2 Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes
Bilge Pumps fitted to the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work Yes
Pumps connected to the Main Bilge Line { No. and Size 1, BILGE PUMP 50 TONS PER HR. 1 GENERAL S. P.M.O 50 TONS PER HR. 1 BALLAST P.M.O 300 TONS PER HR.
 How driven ELECTRIC MOTORS EACH CAPABLE FOR FULL DUTY.
Ballast Pumps, No. and size 1, 300 TONS PER HOUR Lubricating Oil Pumps, including Spare Pump, No. and size 2, 50 TONS PER HOUR
 Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room 4, 2 1/2" ON BILGE LINE, 1, 5" DIRECT GEN. S. P.M.P. 1, 2 1/2" DIRECT TO BALLAST PUMP.
 In Holds, &c. 4, 2 1/2" AFTER HOLD, 4, 2 1/2" FORD HOLD, 2, 2 1/2" & 2, 2 1/2" IN FORD & IN AFT DEEP TANKS.
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1, 2 1/2" & 1, 2 1/2"
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes
 Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks BOTH
 Are they fixed sufficiently high on the ship's side to be seen without lifting the malform plates Yes Are the Overboard Discharges 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 the Blow Off Cocks fitted with a spigot and brass covering plate Yes
 What pipes pass through the bunkers None How are they protected
 What pipes pass through the deep tanks Have they been tested as per Rule
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes Is the 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

Main Air Compressors, No. No. of stages Diameters 1, 15 1/2" x 12 3/4" x 3 7/8" & 8" Stroke 4 Driven by ELECTRIC MOTOR
Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 12 1/2" x 9 1/2" x 3 1/8" & 6 1/2" Stroke 4 Driven by PARAFFIN ENGINE
Small Auxiliary Air Compressors, No. ONE No. of stages 2 Diameters 4 3/4" & 1 3/4" Stroke 4 Driven by PARAFFIN ENGINE
Scavenging Air Pumps, No. ONE Diameter 7 1/2" 1800 m/m Stroke 1220 m/m Driven by MAIN ENGINE
Auxiliary Engines crank shafts, diameter as per Rule 174 m/m as fitted 180 m/m

AIR RECEIVERS:—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 MANHOLE DOOR
 Is there a drain arrangement fitted at the lowest part of each receiver Yes
High Pressure Air Receivers, No. Cubic capacity of each Internal diameter thickness
 Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules
Starting Air Receivers, No. TWO Total cubic capacity 350 CUB FEET Internal diameter 4-1/2 thickness 1 1/2
 Seamless, lap welded or riveted longitudinal joint RIVETED Material STEEL Range of tensile strength 287032 Working pressure by Rules 605/180



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	Plain cylindrical form soundness ascertained by inspection				
COVERS	NONE.				
JACKETS	17/4/26 to 15/5/26	40 lbs.	30 lbs.	J.H.	
PISTON WATER PASSAGES	31/5/26	30 lbs.	100 lbs.	J.H.	
MAIN COMPRESSORS—1st STAGE	✓	✓	✓	✓	
2nd	✓	✓	✓	✓	
3rd	✓	✓	✓	✓	
AIR RECEIVERS—STARTING	18/6/26	600 lbs.	800 lbs.	No 4242 J.H.	
INJECTION	✓	✓	✓	✓	
AIR PIPES	1/7/26	600 lbs.	1000 lbs.	J.H.	
FUEL PIPES	9/6/26 & 22/6/26	8000 lbs.	12000 lbs.	J.H.	
FUEL PUMPS	9/6/26	8000 lbs.	12000 lbs.	J.H.	
SILENCER	Lagged with asbestos open to atmosphere				
WATER JACKET	None.				
SEPARATE FUEL TANKS	30/6/26	✓	10 lbs.	J.H.	

PLANS. Are approved plans forwarded herewith for Shafting **Yes** Receivers **Yes** Separate Tanks **Yes**
 (If not, state date of approval)
 Donkey Boilers **Yes** General Pumping Arrangements **Yes** Oil Fuel Burning Arrangements **Yes**

SPARE GEAR 1 flywheel, 1 main piston complete with skirt, 12 piston rings, 2 centre cam Rod top end bearings with bolts & nuts, 1 centre cam Rod bottom end bearing with bolts & nuts, 1 side x head with shoes complete, 1 side cam Rod bottom end bearing with bolts & nuts, 1 main bearing with studs & nuts, intermediate straight length for crankshaft, 3 crank shaft & 8 tunnel shaft coupling bolts, 1 propeller, 1 bevel wheel for crankshaft drive, 4 fuel valves & levers, 1 starting & 1 relief valve, 4 seawater suction & delivery valves, 1 fuel pump body complete with 4 centre valves & guides, 1 spare propeller shaft, 1 C.I. Propeller, 1 complete set of pumps, 1 set of bearings & valves & rings for a compressor, 1 set of valves for oil burning plant, 1 set of valves for each bilge & transfer pumps, 1 set of bolts, nuts & washers for the foregoing is a correct description.

J.H. Miller Manufacturer.

Dates of Survey while building	During progress of work in shops--	1926. Jan. 6, 7, 15, 22, 25, 28, 29. Feb. 1, 2, 3, 8, 10, 17, 19, 23, 25, 26. Mar. 1, 2, 3, 8, 9, 10, 12, 17, 18, 23, 24, 25, 26, 29, 31. Apr. 1, 7, 12, 13, 14, 15, 17, 19, 20, 21, 22, 23, 26, 27, 28, 29. May, 3, 4, 6, 10, 11, 12, 15, 17, 18, 19, 21, 28, 31. June, 1, 23.
	During erection on board vessel--	7, 8, 9, 11, 15, 16, 18, 19, 21, 22, 25, 26, 29, 30. July, 1, 2, 19, 20, 21, 22, 27, 28, 30. Aug. 3, 5, 9, 10, 11, 23, 24, 25, 26, 27, 30, 31. Sep.
	Total No. of visits	117.

Dates of Examination of principal parts—Cylinders 26/4/26 Covers — Pistons 31/5/26 Rods 23/3/26 Connecting rods 20/4/26
 Crank shaft 15/4/26 Flywheel shaft 4/5/26 Thrust shaft 27/4/26 Intermediate shafts 24/8/26 Tube shaft —
 Screw shaft 3/8/26 Propeller 25/8/26 Stern tube 1/6/26 Engine seatings 30/8/26 Engines holding down bolts 3/9/26
 Completion of fitting sea connections 9/8/26 Completion of pumping arrangements 20/9/26 Engines tried under working conditions 28/9/26
 Crank shaft, Material **I. STEEL** Identification Mark **No. 1. WL** Flywheel shaft, Material **I. STEEL** Identification Mark **5078 MR.**
 Thrust shaft, Material **I. STEEL** Identification Mark **5078 MR.** Intermediate shafts, Material **I. STEEL** Identification Marks **5078 MR.**
 Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material **I. STEEL** Identification Mark **5078 MR.**

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 engines & boilers of this vessel have been built under special survey & the materials & workmanship are good. On completion the machinery was tried at sea under full working conditions with satisfactory results. The machinery throughout is now in a good & efficient condition & eligible in my opinion to have the notation L.M.C.-9-26 & F.S.C.L. 9.26.*

The amount of Entry Fee ... £ 6-0-0
 Special ... £ 119-2-0
 Donkey Boiler Fee ... £ 4-4-0
 Travelling Expenses (if any) £ : :
 When applied for, 24 SEP 1926
 When received, 4-10-26

Harbottle
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 5 OCT 1926
 Assigned *thurs 9 26*
 Oil Engines *CL*
 DB 120/16



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