

# REPORT ON OIL ENGINE MACHINERY.

No. 165

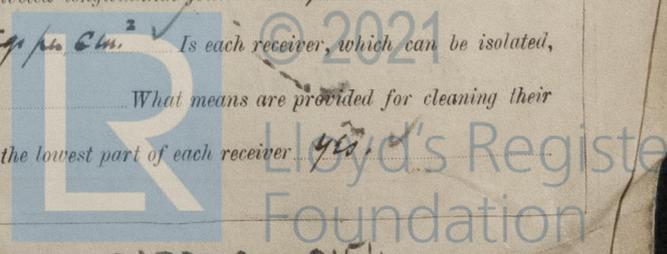
Received at London Office

11 AUG 1926

Date of writing Report July 30 1926 When handed in at Local Office July 30 1926 Port of Vancouver  
 No. in Survey held at N. Vancouver Date, First Survey June 9. 1926 Last Survey July. 24. 1926  
 Reg. Book. Number of Visits 2  
 on the Single } Screw vessels "MARVOLITE" Tons { Gross 131.41  
Double } Net 50.81  
 Master Built at N. Vancouver By whom built Burns & Co. Yard No. 110 When built 1926. 7  
 Engines made at Lycett By whom made Skandin. Verken. A.B. Engine No. 5387 When made 1926  
 Donkey Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓  
 Brake Horse Power 250 Owners Imperial Oil Co Port belonging to Vancouver  
 Nom. Horse Power as per Rule 72 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

**L ENGINES, &c.**—Type of Engines Heavy oil Engine 2 or 4 stroke cycle 2 Single or double acting Single  
 Maximum pressure in cylinders 20 Kgs per cm<sup>2</sup> No. of cylinders 4 No. of cranks 4 Diameter of cylinders 300 mm (14 3/16)  
 Length of stroke 400 mm (15 3/4) Revolutions per minute 300 Means of ignition Hot bulb - Sulzer & Electric Kind of fuel used Grade oil  
 Is there a bearing between each crank yes Span of bearings (Page 176, Section 3, para of Rules) 478 m.m.  
 Distance between centres of main bearings 700 m.m. Is a flywheel fitted yes Diameter of crank shaft journals as per Rule 149 mm.  
 as fitted 170 mm  
 Diameter of crank pins 168 mm. Breadth of crank webs as per Rule 198 mm Thickness of ditto as per Rule 84 mm  
 as fitted 228 mm. as fitted 90 mm.  
 Diameter of flywheel shaft as per Rule ✓ Diameter of tunnel shaft as per Rule 108 ✓ Diameter of thrust shaft as per Rule 115 mm.  
 as fitted ✓ as fitted ✓ as fitted 127 mm.  
 Diameter of screw shaft as per Rule 4.7 ✓ Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes ✓  
 as fitted #2 5" ✓  
 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 burned.  
 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 ✓  
 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 ✓ Length of stern bush 20.5" ✓ Diameter of propeller 4'-9" ✓  
 Pitch of propeller 3'-9" No. of blades 3 state whether moveable Solid Total surface 7.15 square feet  
 Method of reversing Compressed air Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Thickness of cylinder liners ✓  
 Are the cylinders fitted with safety valves after cyl only Means of lubrication grease Are the exhaust pipes and silencers water cooled or lagged with  
 non-conducting material W. Woolen If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine  
chamber to funnel No. of cooling water pumps 1 Is the sea suction provided with an efficient strainer which can be cleared  
 within the vessel no, outside only No. of bilge pumps fitted to the main engines one Diameter of ditto 120 m.m. Stroke 60 m.m.  
 Can one be overhauled while the other is at work ✓ No. of auxiliary pumps connected to the main bilge lines 1 hand 2" How driven left from aux. engine  
 Sizes of pumps 2" No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 2" Two.  
 Fitted in holds, etc. one 2" from fuel. No. of ballast pumps ✓ How driven ✓ Sizes of pumps ✓  
 Is the ballast pump fitted with a direct suction from the engine room bilges ✓ State size ✓ Is a separate auxiliary pump suction fitted in  
 engine room and size yes 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 none Are all connections with the sea direct on the skin of the ship yes  
 Are they valves or cocks radio 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 ✓ Is it fitted with a watertight door ✓  
 Is it worked from ✓ 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 Starting air receiver filled with gas from after cylinder. No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓  
 No. of auxiliary air compressors ✓ No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓  
 No. of small auxiliary air compressors 1 No. of stages 1 Diameters 70 mm Stroke 120 mm Driven by Aux Engine.  
 No. of scavenging air pumps Cyls. Scavenged by air in cranks. Diameter ✓ Stroke ✓ Driven by ✓  
 Diameter of auxiliary Diesel Engine crank shafts as per Rule ✓ Are the air compressors and their coolers made so as to be easy of access ✓  
 as fitted ✓

**R RECEIVERS:**—No of high pressure air receivers Internal diameter Cubic capacity of each  
 Material Seamless, lap welded or riveted longitudinal joint Range of tensile strength  
 Working pressure by Rules No. of starting air receivers 2 Internal diameter 450 mm  
 Total cubic capacity 500 litres (19.22 cu ft) Material S. m. steel Seamless, lap welded or riveted longitudinal joint lap welded.  
 Range of tensile strength 26 1/2 tons thickness 9 m.m. Working pressure by rules 23 Kgs per cm<sup>2</sup> Is each receiver, which can be isolated,  
 provided 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 drain only. Is there a drain arrangement fitted at the lowest part of each receiver yes



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IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded?

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	24. 2. 26.	20 Kgs per Cm <sup>2</sup>	40 Kgs per Cm <sup>2</sup>	6604/25. 40 Kgs. G.A. 24. 2. 26	
COVERS	24. 2. 26	do	do	do	
JACKETS	24. 2. 26	1 do	5 do		
PISTON WATER PASSAGES					
MAIN COMPRESSORS—1st STAGE					
2nd					
3rd					
AIR RECEIVERS—STARTING	24. 2. 26	20 Kgs per Cm <sup>2</sup>	40 Kgs per Cm <sup>2</sup>	1171/18. 40 Kgs. H.P. 20 Kgs G.A. 24. 2. 26	
INJECTION	7. 7. 26	400 lbs	400 lbs		
AIR PIPES					
FUEL PIPES					
FUEL PUMPS					
SILENCER <i>fuel tanks</i>	21. 6. 26				
WATER JACKET	24. 2. 26	1 Kgs.	5 Kgs.	LR.	
SEPARATE FUEL TANKS					

PLANS. Are approved plans forwarded herewith for shafting *27. 8. 26* Receivers Separate Tanks

SPARE GEAR for main engine. one cylinder core complete. 1 piston with rings complete - 4 lub bolts. 18 piston rings. 2 connecting rods. 10 1/2 inch bolts nuts. 2 connecting rods bottom end bolts nuts. 2 main bearing bolts & nuts. 1 set cup core studs & nuts. 1 set coupling bolts. one starting air valve. one fuel pump complete. 4 set fuel valves. 1 valve for circulating pump - 1 valve for bilge pump. 8 injection plugs. 20 fuel injection pieces. 12 fuel non return valves. 1 set air suction valve and springs. 1 fuel pipe. 1 governor cam shaft. 14 cam rollers 1 spring for reversing gear + governor. one compressor 4 lub bolts. 4 piston rings for engine & compressor. 1 set valve. 1 set fuel valve. 2 plugs. 2 injection pieces

The foregoing is a correct description,

*Burrard Dry Dock Co Ltd, W. D. Davis* Manufacturer. Shipbuilders & Engineers

Dates of Survey while building: During progress of work in shops - See Gothenburg report. Mch 5. 1926 No. 6349. (1925 Oct. 19. 1926 July 26. Feb 23. 24.)  
 During erection on board vessel - June 9. 21. 29. July 5. 6. 7. 9. 10. 12. 14. 15. 22.  
 Total No. of visits 12

Dates of Examination of principal parts—Cylinders 19. 10. 25. Covers 24. 2. 26 Pistons 19. 10. 25 Rods 24. 2. 26 Connecting rods 19. 10. 25  
 Crank shaft 24. 2. 26 Thrust shaft 19. 10. 25 Tunnel shafts ✓ Screw shaft 12. 5. 26 Propeller 29. 6. 26 Stern tube 29. 6. 26 Engine seatings 21. 6. 26  
 Engines holding down bolts 24. 6. 26 Completion of pumping arrangements 15. 7. 26 Engines tried under working conditions 12. 7. 26  
 Completion of fitting sea connections 21. 6. 26 Stern tube 29. 6. 26 Screw shaft and propeller 29. 6. 26  
 Material of crank shaft *SM steel* Identification Mark on Do. *No 5076-GA* Material of thrust shaft *SM S.* Identification Mark on Do. *8076-GA*  
 Material of tunnel shafts ✓ Identification Marks on Do. ✓ Material of screw shafts *64 S.* Identification Marks on Do. *262. 12. 5. 1925*

Is the flash point of the oil to be used over 150° F. *440*

Is this machinery duplicate of a previous case  If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. See Gothenburg report no 6349 dated Mch 5. 1926.  
 This machinery has been built under special survey, and has been fitted into this vessel in accordance with the requirements and approved plans. The workman ship is good and list sheet in screw shop is attached. A satisfactory trial under working conditions has been carried out, and also a special manufacturing trial has also been held with satisfactory results. The spare gear is complete. (Plans of Mch arrangement, Tail shaft to him like enclosed). This machinery is eligible, in my opinion, to be classed with radiation LMC-7. 26. CL  
 The fuel tanks have been tested, and section 35 requirements carried out.

The amount of Entry Fee ... £ 10. 00 : When applied for,  
 Special ... £ 100. 00 : July 30 1926.  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ : : 13. 9. 26

Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 8 APR 1927

Committee's Minute

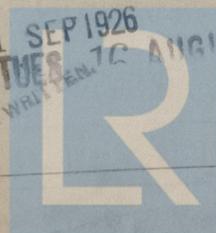
FRI. 20 AUG 1926

TUES. 21 SEP 1926

TUES. 10 AUG 1927

Assigned

+ LMC 7. 26. CL  
Oil Engines



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Vancouver

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