

## REPORT ON OIL ENGINE MACHINERY.

No. 6. 14 JAN 1925

THU. JAN. 6 1925

## REMARKS.

Date of writing Report 22<sup>nd</sup> Dec. 1920 When handed in at Local Office 22<sup>nd</sup> Dec. 1920 Port of Winterthur  
 Date, First Survey 6<sup>th</sup> August 20 Last Survey 19  
 Number of Visits  
 Satisfactory No. in Survey held at Winterthur  
 Reg. Book. on the Twin Screw vessel "AORANGI"  
 Master Built at G. J. By whom built Fairfield S. E. & Co. No. 603 When built 1914  
 Engines made at Winterthur By whom made Sulzer Bros. & Co. Engine No. 2967 When made 1920  
 Donkey Boilers made at By whom made Boiler No. When made  
 Brake Horse Power 420. Owners. Port belonging to  
 Nom. Horse Power as per Rule 32. Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

IL ENGINES, &c. Type of Engines Sulzer marine Diesel Engine 2 or 4 stroke cycle 2 Single or double acting Single  
 Maximum pressure in cylinders 35 ATs. No. of cylinders 4 No. of cranks 4 Diameter of cylinders 340<sup>mm</sup>  
 Length of stroke 540<sup>mm</sup> Revolutions per minute 200 Means of ignition Temperature due to compression Kind of fuel used Heavy fuel oil.  
 Is there a bearing between each crank Yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 430<sup>mm</sup>  
 Distance between centres of main bearings 650<sup>mm</sup> Is a flywheel fitted Yes to crank shaft Diameter of crank shaft journals as per Rule 207<sup>mm</sup>  
 as fitted 215<sup>mm</sup>  
 Diameter of crank pins 215<sup>mm</sup> Breadth of crank webs as per Rule 275<sup>mm</sup> as fitted 280<sup>mm</sup> Thickness of ditto as per Rule 116<sup>mm</sup>  
 as fitted 115<sup>mm</sup>  
 Diameter of flywheel shaft as per Rule none fitted Diameter of tunnel shaft as per Rule Diameter of thrust shaft as per Rule  
 as fitted Is the screw shaft fitted with a continuous liner the whole length of the stern tube  
 after end of the liner made watertight in the propeller boss If the liner is in more than one length are the joints burned  
 a 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  
 no liners are fitted, is the shaft lapped or protected between the liners If without liners, is the shaft arranged to run in oil  
 of outer gland fitted to stern tube Length of stern bush Diameter of propeller  
 of propeller No. of blades state whether moveable Total surface square feet  
 of reversing Direct Is a governor or other arrangement fitted to prevent racing of the engine when decelerated Yes Thickness of cylinder liners 27<sup>mm</sup>  
 the cylinders fitted with safety valves Yes Means of lubrication Forced. Are the exhaust pipes and silencers scales, cooled or lagged with  
 conducting material Yes. If the exhaust is led overhead near the waterline, what means are arranged to prevent water from being syphoned back to the engine  
 No. of cooling water pumps 1 double acting Is the sea suction provided with an efficient strainer which can be cleared  
 in the vessel No. of bilge pumps fitted to the main engines 1 double acting Diameter of ditto 115<sup>mm</sup> Stroke 110<sup>mm</sup>  
 can one be overhauled while the other is at work No. of auxiliary pumps connected to the main bilge lines How driven  
 Nos. of pumps No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room  
 in holds, etc. 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 Are all the bilge suction pipes fitted with roses Are the roses in Engine Room always accessible  
 Are the sluices on Engine Room bulkheads always accessible Are all connections with the sea direct on the skin of the ship  
 Are they valves or cocks Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates  
 Are the discharge pipes above or below the deep water line Are they each fitted with a discharge valve always accessible on the plating of the vessel  
 Are all pipes, cocks, valves and pumps in connection with the machinery accessible at all times Are the bilge suction pipes, cocks and valves arranged so as to prevent any  
 communication between the sea and the bilges Is the screw shaft tunnel watertight Is it fitted with a watertight door  
 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. No. of stages 3. Diameters 390/350/175<sup>mm</sup> Stroke 280<sup>mm</sup> Driven by Crank Shaft  
 No. of auxiliary air compressors No. of stages Diameters Stroke Driven by  
 No. of small auxiliary air compressors No. of stages Diameters Stroke Driven by  
 No. of scavenging air pumps 1 double acting Diameter 400<sup>mm</sup> Stroke 450<sup>mm</sup> Driven by Crank Shaft  
 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 Yes  
 as fitted  
 AIR RECEIVERS:—No. of high pressure air receivers 1. Internal diameter 250<sup>mm</sup> Cubic capacity of each 100 Litres  
 material S.M. Steel Seamless, lap welded or riveted longitudinal joint Seamless. Range of tensile strength 45/55 Kg. per <sup>mm</sup><sup>2</sup>  
 thickness 10<sup>mm</sup> working pressure by Rules 15 ATs. No. of starting air receivers Internal diameter  
 Total cubic capacity 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  
 inner surfaces Is there a drain arrangement fitted at the lowest part of each receiver Yes.



IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

## HYDRAULIC TESTS:—

pt. 4b.

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS .....	17-8-20	35 ATS.	75 ATS.	R	Test Satisfactory
" " COVERS .....	-do-	-do-	-do-	"	-do-
" " JACKETS .....	-do-	1 ATS.	3 ATS.	"	-do-
" PISTON WATER PASSAGES .....	18-8-20	5 ..	5 ..	"	-do-
MAIN COMPRESSORS—1st STAGE .....	13-8-20	3 ..	35 ..	"	-do-
" 2nd " .....	-do-	14.5.	35 ..	"	-do-
" 3rd " .....	14-8-20	40..	140 ..	"	-do-
AIR RECEIVERS—STARTING .....					
" INJECTION .....	19-8-20	70 ATS.	140 ATS.	R	-do-
AIR PIPES .....	6-8-20	40.	140 ..	"	-do-
FUEL PIPES .....	-do-	40.	140 ..	"	-do-
FUEL PUMPS & VALVES .....	16-8-20	40..	140 ..	"	-do-
SILENCER .....	9-8-20	1 ..	3 ..	"	-do-
" WATER JACKET .....					
SEPARATE FUEL TANKS .....					

PLANS. Are approved plans forwarded herewith for shafting **SENT TO LONDON 31/7/20** Receivers **IN LONDON OFFICE 7/6/20** APPROVED Separate Tanks

## SPARE GEAR

The foregoing is a correct description.

Sulzer Frères

Facility Anonymous  
 Manufacturer.

Dates of Survey while building { During progress of work in shops - - } 6-8-20, 9-8-20, 13-8-20, 14-8-20, 16-8-20, 17-8-20, 18-8-20, 19-8-20, 22-10-20, 23-10-20, 6-12-20, 22-12-20  
 { During erection on board vessel - - }  
 Total No. of visits

Dates of Examination of principal parts—Cylinders 17-8-20 Covers 17-8-20 Pistons 18-8-20 Rods 22-12-20 Connecting rods 22-12-20

Crank shaft 22-12-20 Thrust shaft Tunnel shafts Screw shaft Propeller Stern tube Engine seatings

Engines holding down bolts Completion of pumping arrangements Engines tried under working conditions

Completion of fitting sea connections Stern tube Screw shaft and propeller

Material of crank shaft **S.M. INGOT STEEL** Identification Mark on Do. **R** 22-12-20 Material of thrust shaft Identification Mark on Do.

Material of tunnel shafts Identification Marks on Do. Material of screw shafts 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 **Yes** <sup>Nº 4</sup> <sub>EX-104</sub> If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. **Stock Engine Constructed under Ordinary**

**Survey. Materials and workmanship good. Full power trial in shops satisfactory**

**This machinery has been satisfactorily fitted on board the above vessel**

The amount of Entry Fee ... £ **2-0-0** When applied for,  
 Special ... £ **20-10-0** **20th Dec. 1920**  
 Donkey Boiler Fee ... £ : : When received,  
 Travelling Expenses (if any) £ : : **3rd Jan 1920**

Committee's Minute

GLASGOW

13 JAN 1925

Assigned

See Winterthur Rpt 40

attached to Glasgow Rpt 442 P5.

LR-FAF-789-128



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