

## REPORT ON OIL ENGINE MACHINERY.

No. 63.

4.8.25

Received at London Office

Date of writing Report 30-7 1925 When handed in at Local Office 30-7 1925 Port of Winterthur.  
 No. in Survey held at Reg. Book. Winterthur Date, First Survey 3-9-24. Last Survey 23-6 1925  
 Number of Visits

on the <sup>Single</sup> ~~Twin~~ <sup>Triple</sup> Screw vessels

Tons <sup>Gross</sup>  
<sup>Net</sup>

Built at Nagasaki By whom built Mitsubishi Zosen Kaisha Yard No. 410 When built 1925.  
 Engines made at Winterthur By whom made Messrs. Sulzer Bros. Engine Nos. 5465, 5471 When made 1925.  
 Donkey Boilers made at By whom made Boiler No. When made  
 Brake Horse Power 2300 (Each Eng.) = 4600 Total Owners Osaka Shosen Kaisha Port belonging to  
 Nom. Horse Power as per Rule 1164 (Two Eng.) Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted yes.

**OIL ENGINES, &c.** Type of Engines Sulzer Diesel Engines 2 or 4 stroke cycle 2 Single or double acting single  
 Maximum pressure in cylinders 38 at. No. of cylinders 12 Total Diameter of cylinders 600 mm No. of cranks 12 Total Length of stroke 1060 mm  
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 810 mm Is there a bearing between each crank yes  
 Revolutions per minute 112 Flywheel dia. 2100 mm Weight 10300 kg. Means of ignition compression Kind of fuel used heavy fuel oil  
 Crank Shaft, dia. of journals <sup>as per Rule</sup> 386 mm <sup>as fitted</sup> 405 mm Crank pin dia. 405 mm Crank Webs <sup>Mid. length breadth</sup> 550 mm <sup>Mid. length thickness</sup> 225 mm Thickness parallel to axis shrunk Thickness around eye hole shrunk  
 Flywheel Shafts, diameter <sup>as per Rule</sup> 386 mm <sup>as fitted</sup> 405 mm Intermediate Shafts, diameter <sup>as per Rule</sup> 292 mm <sup>as fitted</sup> 292 mm Thrust Shaft, diameter at collars <sup>as per Rule</sup> 306.6 mm <sup>as fitted</sup> 390 mm  
 Tube Shafts, diameter <sup>as per Rule</sup> as fitted Screw Shaft, diameter <sup>as per Rule</sup> as fitted Is the <sup>tube</sup> <sup>screw</sup> shaft fitted with a continuous liner

Bronze Liners, thickness in way of bushes <sup>as per Rule</sup> as fitted Thickness between bushes <sup>as per rule</sup> as fitted Is the after end of the liner made watertight in the propeller boss

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner  
 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  
 If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft  
 Length of Bearing in Stern Bush next to and supporting propeller

Propeller, dia. Pitch No. of blades Material whether Moveable Total Developed Surface sq. feet  
 Method of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when detached yes Means of lubrication forced  
 Thickness of cylinder liners 45 mm 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

Cooling Water Pumps, No. 2 electric driven centrifugal pumps the sea suction provided with an efficient strainer which can be cleared within the vessel

Bilge Pumps connected to the Main Bilge Line No. 2 electric driven Capacity of each 50 m<sup>3</sup> per hour Stroke 6" Can one be overhauled while the other is at work yes

Pumps connected to the Main Bilge Line { No. and Size  
 How driven

Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size 2 electric driven Capacity of each 25 m<sup>3</sup> per hour stand by  
 Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Engine and Boiler Room

In Holds, &c.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes 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

Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Are the Overboard Discharges above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate  
 What pipes pass through the bunkers 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

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 Is the 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

Main Air Compressors, No. Two each engine No. of stages 3 Diameters 640/580/140 Stroke 560 mm Driven by Crank shaft  
 Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 325/290/65 Stroke 180 " Driven by electric motors  
 Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 110/35 Stroke 120 mm Driven by hot bulb engine  
 Scavenging Air Pumps, No. Two turbo scavenging blowers each having an intake volume of 660 cu metres of free air per min. Driven by electric motors  
 Auxiliary Engines crank shafts, diameter <sup>as per Rule</sup> 152.5 mm <sup>as fitted</sup> 175 "

**AIR RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined What means are provided for cleaning their inner surfaces

Is there a drain arrangement fitted at the lowest part of each receiver

High Pressure Air Receivers, No. 2 Injection starting Cubic capacity of each 150 LITRES Internal diameter 300 mm thickness 15 mm  
800 " 50 to 60 kg/cm<sup>2</sup> 28.35 Tons Working pressure by Rules 102.8 at @ 47 kg/cm<sup>2</sup>  
 Seamless, lap welded or riveted longitudinal joint seamless Material S.M. Steel Range of tensile strength 28.35 Tons Working pressure by Rules 102.8 at @ 47 kg/cm<sup>2</sup>

Starting Air Receivers, No. Total cubic capacity Internal diameter thickness  
 Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules

Lloyd's Register  
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008158-008157-0342

## IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

## HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS .....	16-1-25, 29-1-25, 6-2-25, 10-2-25	38 lbs.	75 lbs.	R.	Tests satisfactory
" " COVERS .....	" " " "	" "	" "	R.	" "
" " JACKETS .....	27-1-25, 30-1-25, 2-2-25, 4-2-25, 9-2-25	1 "	6 "	R.	" "
" " PISTON WATER PASSAGES .....	10-2-25, 11-2-25, 13-2-25, 16-2-25, 27-4-25, 11-5-25.	2 "	" "	R.	" "
MAIN COMPRESSORS—1st STAGE .....	27-2-25, 7-3-25.	3 "	50 "	R.	" "
" 2nd " .....	" " " "	17.5 "	" "	R.	" "
" 3rd " .....	3-3-25, 5-3-25.	70 "	150 "	R.	" "
AIR RECEIVERS—STARTING .....	25-8-20, 2-9-20, 11-9-20.	" "	" "	M.B. or H.K. & R.	Tested in Disseldorf district
" INJECTION .....	15-7-20, 27-3-25	" "	" "	K.H. & R.	Tests satisfactory
AIR PIPES .....	30-4-25, 4-5-25, 5-5-25, 12-5-25,	" "	" "	R.	" "
FUEL PIPES .....	13-5-25, 14-5-25, 15-5-25, 29-5-25.	" "	" "	R.	" "
FUEL PUMPS & VALVES .....	8-1-25, 9-1-25, 16-1-25, 19-1-25.	" "	140 "	R.	" "
SILENCER .....	19-6-25, 23-6-25.	0.5 "	2.5 "	R.	" "
" WATER JACKET .....					
SEPARATE FUEL TANKS .....					

PLANS. Are approved plans forwarded herewith for Shafting 13-11-24.  
(If not, state date of approval)Receivers Starting 7-6-20.  
25-5-20. Separate Tanks

Donkey Boilers

General Pumping Arrangements

Oil Fuel Burning Arrangements

## SPARE GEAR

Sulzer Brothers

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building	During progress of work in shops--	2-9-24, 23-9-24, 1-10-24, 10-10-24, 29-10-24, 17-11-24, 16-12-24, 8-1-25, 9-1-25, 12-1-25, 15-1-25, 16-1-25, 19-1-25, 22-1-25, 27-1-25, 29-1-25, 30-1-25, 2-2-25, 4-2-25, 6-2-25, 9-2-25, 10-2-25, 11-2-25, 12-2-25, 13-2-25, 16-2-25, 17-2-25, 19-2-25, 20-2-25, 27-2-25, 28-2-25, 3-3-25, 5-3-25, 7-3-25, 10-3-25, 17-3-25, 27-3-25, 20-4-25, 27-4-25, 30-4-25, 4-5-25, 5-5-25, 11-5-25, 12-5-25, 13-5-25, 14-5-25, 15-5-25, 25-5-25, 26-5-25, 28-5-25, 29-5-25, 2-6-25, 3-6-25, 4-6-25, 6-6-25, 10-6-25, 11-6-25, 12-6-25, 19-6-25, 22-6-25, 23-6-25.
	During erection on board vessel--	11-6-25, 12-6-25, 19-6-25, 22-6-25, 23-6-25.
	Total No. of visits	

Dates of Examination of principal parts—Cylinders 2-6-25, 10-6-25 Covers 2-6-25, 10-6-25 Pistons 2-6-25, 10-6-25 Rods 2-6-25, 10-6-25 Connecting rods 3-6-25, 10-6-25

Crank shaft 3-6-25, 10-6-25 Flywheel shaft 3-6-25, 10-6-25 Thrust shaft 3-6-25, 10-6-25 Intermediate shafts Tube shaft

Screw shaft Propeller Stern tube Engine seatings Engines holding down bolts

Completion of fitting sea connections Completion of pumping arrangements Engines tried under working conditions

Crank shaft, Material Ann. S.M. Eng. Steel Identification Mark 25-10-24 or 21-10-24 R. 16-1-25. Eng. No. 5465, Lloyd's No. 12055 or 876 H.K. or J.Q. Eng. No. 5465, Lloyd's No. 12056

Thrust shaft, Material Identification Mark 25-10-24 or 21-10-24 R. 16-1-25. Eng. No. 5471, Lloyd's No. 45 or 66 J.L. 13-11-24 or 2-12-24. Eng. No. 5471, Lloyd's No. 12054

Tube shaft, Material Identification Mark Intermediate shafts, Material Identification Marks 25-10-24. R. 19-2-25.

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. This machinery together with three auxiliary engines No. 14177-81 and 85, Type 4RH31, one auxiliary engine No. 14213, Type 2RH24, two auxiliary compressors No. 165 and 167, Type C100, and one auxiliary compressor No. 268, Type MCG, with their accessories have been constructed under Special Survey in accordance with the requirements of the Rules, the Secretary's letters, and the approved plans. Materials and workmanship good. Full power trials of engines and compressors in shop satisfactory.

The amount of Entry Fee ... £ 6. 0. 0. : When applied for,  
Special ... £ 129. 2. 0. : 31<sup>st</sup> July 1925.  
Donkey Boiler Fee ... £ : : When received,  
Travelling Expenses (if any) £ : : 1<sup>st</sup> Aug. 1925.

Committee's Minute

FRI. 26 FEB 1926

Assigned

W.G. Gallis  
Engineer Surveyor to Lloyd's Register of Shipping.



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