

REPORT ON OIL ENGINE MACHINERY.

No. 6688.
WED. DEC. 5 1923

Received at London Office

Date of writing Report 1st December 1923 When handed in at Local Office 19 Port of Copenhagen
 No. in Survey held at Copenhagen Date, First Survey 24th May Last Survey 20th November 1923
 Reg. Book Single on the Motor Screw vessels (MITSUI) Tons Gross Net
 Master Uno, Japan By whom built KAISHA Yard No. 63 When built 1923
 Engines made at Copenhagen By whom made Akts. Burmeister & Wain Engine No. 996 When made 1923
 Donkey Boilers made at By whom made Boiler No. When made
 Brake Horse Power 1500, 1950 Owners MITSUI BUSSAN KAISHA, LD. Port belonging to Tokio, Japan
 Indicated 2000, 2600 Nom. Horse Power as per Rule 489 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

TYPE OF ENGINES, &c.—Type of Engines VERTICAL DIESEL OIL ENGINE 2 or 4 stroke cycle 4 Single or double acting Single
 Maximum pressure in cylinders 35 kg/cm² No. of cylinders 6 No. of cranks 6 Diameter of cylinders 740 mm = 29 1/8"
 Length of stroke 1500 mm = 59 1/2" Revolutions per minute 95 Means of ignition Air compression Kind of fuel used Crude oil (Flash point above 150° F.)
 Is there a bearing between each crank Yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 1004 mm

Distance between centres of main bearings 1450 mm Is a flywheel fitted Yes Diameter of crank shaft journals as per Rule 470.16 mm/m
 Diameter of crank pins 472 mm Breadth of crank webs as per Rule 870 mm/m Thickness of ditto as per Rule 310 mm/m
 Diameter of flywheel shaft as per Rule 470.16 mm/m Diameter of tunnel shaft as per Rule 12.876" Diameter of thrust shaft as per Rule 13.51"
 Diameter of screw shaft as per Rule 13.77" 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 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 If without liners, is the shaft arranged to run in oil Yes
 Type of outer gland fitted to stern tube Yes Length of stern bush 5'-0" Diameter of propeller 15'-9"
 Pitch of propeller 12'-0" No. of blades 4 state whether moveable No Total surface 76 square feet

Method of reversing direct reversible Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Thickness of cylinder liners 53.5 mm/m
 Are the cylinders fitted with safety valves Yes Means of lubrication Forced lubrication 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 Silencers lagged
 No. of cooling water pumps one Is the sea suction provided with an efficient strainer which can be cleared Yes

No. of bilge pumps fitted to the main engines 2 off Diameter of ditto 160 mm/m Stroke 220 mm/m
 Can one be overhauled while the other is at work Yes No. of auxiliary pumps connected to the main bilge lines one How driven Electric motor
 Sizes of pumps Diam = 6 1/2" Stroke = 9" No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room Yes
 No. of ballast pumps Yes How driven Yes Sizes of pumps Yes

Is the ballast pump fitted with a direct suction from the engine room bilges Yes State size Yes Is a separate auxiliary pump suction fitted in Yes
 Engine Room and size Yes 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 Yes Are all connections with the sea direct on the skin of the ship Yes
 Are they valves or cocks Yes 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 Yes 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
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes

No. of main air compressors 1 off No. of stages 3 Diameters LP = 750 mm/m, MP = 675 mm/m, NP = 150 mm/m Stroke 480 mm/m Driven by the main oil engine
 No. of auxiliary air compressors 3 No. of stages 3 Diameters LP = 318 mm/m, MP = 285 mm/m, NP = 78 mm/m Stroke 170 mm/m Driven by auxiliary oil engine
 No. of small auxiliary air compressors 1 No. of stages 2 Diameters LP = 80 mm/m, NP = 32 mm/m Stroke 140 mm/m Driven by hand
 No. of scavenging air pumps Yes Diameter Yes Stroke Yes Driven by Yes

Diameter of auxiliary Diesel Engine crank shafts as per Rule 154 mm/m Are the air compressors and their coolers made so as to be easy of access Yes
 AIR RECEIVERS:—No of high pressure air receivers III - 3 off Internal diameter I - 17 3/4", II - 15 3/4", III - 7 1/4" Cubic capacity of each I - 500 litres, II - 250, III - 25
 Material Simons Martin Steel Seamless, lap welded or riveted longitudinal joint Seamless Range of tensile strength 26-30 tons per sq"
 Thickness I - 1/8", II - 5/8", III - 3/8" working pressure by Rules 65 ATM. No. of starting air receivers 2 off Internal diameter 5'-11" x 6'-1"
 Total cubic capacity 2 x 550 cubic feet Material Simons Martin Steel Seamless, lap welded or riveted longitudinal joint Painted
 Range of tensile strength Ends - 26.7-30.8 thickness Ends - 1/8" Working pressure by Rules 25 ATM. 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 The starting air receivers are fitted with manholes Is there a drain arrangement fitted at the lowest part of each receiver Yes



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					
COVERS	3/10, 6/10 & 8/10, 23.	15 lbs per sq"	30 lbs per sq"	Main engine LLOYD'S TEST 30 lbs & 3.10.23	Auxiliary engines LLOYD'S TEST 30 lbs & 6.8.10.23
JACKETS	28/9 23	15 lbs	30 lbs	28.9.23	Spare pistons 22/10 & 20/11, 23
PISTON WATER PASSAGES					
MAIN COMPRESSORS—1st Stage	8/10, 23.	15 lbs	30 lbs	LLOYD'S TEST 30 lbs & 8.10.23	Small cylinder cover LLOYD'S TEST 30 lbs & 3.11.23.
2nd					
3rd					
AIR RECEIVERS—STARTING	27/9 & 29/9 23	25 ATM.	41 ATM.	LLOYD'S TEST and 41 ATM WP-25 ATM & 27.9.23	LLOYD'S TEST 41 ATM WP-45 ATM & 27.9.23.
INJECTION	5/11, 23	65 ATM.	130 ATM.	LLOYD'S TEST. No 53, 54, 55, 56, 57, 58.	
AIR PIPES for starting purpose	11/10, 23.	25 ATM.	50 ATM.	130 ATM WP 65 ATM & 5.11.23	
AIR PIPES for injection		65 ATM.	130 ATM.		
FUEL PIPES	22/10, 23.	75 ATM.	130 ATM.		
FUEL PUMPS	27/9, 23.	5 ATM.	10 ATM		
SILENCER					
WATER JACKET of pipes	11/10, 23.	15 lbs per sq"	30 lbs per sq"	LLOYD'S TEST 30 lbs & 11.10.23.	LLOYD'S TEST 30 lbs & 27.9.23.
SEPARATE FUEL TANKS	20/8 & 27/9 23	0	10 lbs	LLOYD'S TEST 30 lbs & 20.8.23. and & 27.9.23.	

PLANS. Are approved plans forwarded herewith for shafting *yes*
(If not, state date of approval)

Receivers *Starting air receivers.* Separate Tanks *Daily service oil fuel tanks.*

SPARE GEAR

As per accompanying list, — to be checked onboard the vessel.

The foregoing is a correct description,

H. Nielsen

Manufacturer.

Dates of Survey while building: During progress of work in shops -- 24. Jan, 6, 13, 18, 20, 21, 22, 29 June, 4, 5, 6, 12, 13, 20, 24, 27 July, 9, 10, 14, 15, 16, 22, 23, 25, 28, 29 Aug., 1, 6, 11, 13, 14, 17, 20, 22, 24, 27, 28, 29 Sept., 1, 3, 5, 6, 8, 11, 22, 27, 29 October, 1, 3, 5, 9 & 20 November 1923.
During erection on board vessel --
Total No. of visits *52.*

Dates of Examination of principal parts: Cylinder liners — 22/6, 29/6, 13/7, 16/8, 25/8, 1/9, 22/9, 3/10, 6/10, 8/10, 23. Covers & Jackets — 6/7, 10/9, 11/9. Pistons — 22/9, 28/9, 23. Rods — 28/9, 23. Connecting rods — 6/6, 21/6, 4/7, 24/5, 16/6, 19/6, 29/6, 4/7, 7/7, 13/7, 18/6, 13/7, 18/6, 6/7, 13/6, 13/7. Crank shafts — 24/5, 29/5, 1/6, 23. Thrust shaft — 17/9, 23. Tunnel shafts — 13/7, 29/8, 23. Screw shaft — 6/9, 27/9, 23. Propeller — 13/9, 23. Stern tube — 25/8, 23. Engine seatings — 27/10, 29/10, 1/11, 9/11.

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

Completion of fitting sea connections Stern tube LLOYD'S No 6696, 6697 Screw shaft and propeller LLOYD'S No 6707

Material of crank shafts *S.M. Angot Steel* Identification Mark on Do. *Q 14.9.23* Material of thrust shaft *S.M. Angot Steel* Identification Mark on Do. *R 17.9.20.*
LLOYD'S No 6688, 6689, 6690. LLOYD'S No 6730

Material of tunnel shafts *S.M. Angot Steel* Identification Marks on Do. *R 29.8.23.* Material of screw shafts *S.M. Angot Steel* Identification Marks on Do. *R 27.9.23.*
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. *In accordance with the Rules for Special Survey we have examined the material and workmanship from the commencement of construction until the final test of the main and auxiliary engines with air compressors &c under working condition on the testing bench in shop and found to work satisfactorily. The material used in the construction of the engines and the air receivers have been tested as required by the Rules either by us or as per certificates produced. — The dimensions are as specified and in accordance with the Rules, the approved plans and the requirements contained in London letters E. dated the 25th April, 4th & 17th May & 20th June 1923.*

Recommend vessel to have notation of *L.M.C.* with date, OIL ENGINES. C.L. in the Register Book when the machinery has been fitted onboard the vessel under supervision of a Surveyor to this Society.

The amount of Entry Fee	... Ks. 96 : 40	When applied for,	3. 12. 23.
Special	... Ks. 1876 : 26	When received,	December 1923.
Donkey Boiler Fee	... £ :		
Travelling Expenses (if any)	... £ :		

A. O. Debes, K. Hühoff, S. M. Aussen
Engineer Surveyors to Lloyd's Register of Shipping.

FRI. 26 SEP 1924

Committee's Minute
Assigned



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