

## REPORT ON OIL ENGINE MACHINERY.

No. 1324.

Received at London Office

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Date of writing Report *2nd Feb 31* When handed in at Local Office *4th Feb 31* Port of *Bremen*  
No. in Survey held at *Augsburg* Date, First Survey *4th April 1930* Last Survey *31st January 31*  
Reg. Book. Number of Visits *66*

Single  
on the Twin } Screw vessel  
Triple }  
Quadruple }

Built at *Kobe* By whom built *Kawasaki Dockyard Co. Ltd.* Yard No. *563* When built *1930/31*  
Engines made at *Augsburg* By whom made *Masch. fabrik Augsburg-Kueningberg* Engine No. *330570* When made *1930/31*  
Donkey Boilers made at By whom made Boiler No. When made  
Brake Horse Power *6000* Owners *Kokusai Kisen Kaisha.* Port belonging to *Tokio*  
Nom. Horse Power as per Rule *1857* Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted  
Trade for which vessel is intended

OIL ENGINES, &c. Type of Engines *D7 2 70/120* 2 or 4 stroke cycle *2* Single or double acting *double*  
Maximum pressure in cylinders *45 atm* Diameter of cylinders *700 mm* Length of stroke *1200 mm* No. of cylinders *7* No. of cranks *7*  
Span of bearings, adjacent to the Crank, measured from inner edge to inner edge *1090 mm* Is there a bearing between each crank *yes*  
Revolutions per minute *95* Flywheel dia. *2100 mm* Weight *3120 kg* Means of ignition *Solid inject.* Kind of fuel used *Bonuco oil on test bed*  
Crank Shaft, dia. of journals as per Rule as fitted *500 mm* Crank pin dia. *500 mm* Crank Webs Mid. length breadth shrunk Thickness parallel to axis *320 mm*  
Flywheel Shaft, diameter as per Rule as fitted *500 mm* Intermediate Shafts, diameter as per Rule as fitted *408 @ 3400 kg. Flywheel* Thrust Shaft, diameter at collars as per Rule as fitted  
Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule as fitted Is the { tube } shaft fitted with a continuous liner {  
Bronze Liners, thickness in way of bushes as per Rule as fitted Thickness between bushes as per rule 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, comp. 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 *45 mm* Are the cylinders fitted with safety valves *yes* Are the exhaust pipes and silencers water cooled or lagged with  
non-conducting material *air space* 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. *3, independent rotary, 400 m<sup>3</sup>/h each* Is the sea suction provided with an efficient strainer which can be cleared within the vessel  
Bilge Pumps worked from the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work  
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, independent rotary, 55 m<sup>3</sup>/h each*  
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 Machinery Spaces  
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 Spaces  
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. No. of stages Diameters Stroke Driven by  
Auxiliary Air Compressors, No. *2 x 326 m<sup>3</sup>/h* No. of stages *3* Diameters *350/295/100 mm* Stroke *220 mm* Driven by *aux. engines.*  
Small Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by  
Scavenging Air Pumps, No. *1 x 775 m<sup>3</sup>/min blower* Diameter Stroke Driven by  
Auxiliary Engines crank shafts, diameter as per Rule as fitted *170 mm* 450 mm 275 mm 450 mm

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 *yes, manholes*  
Is there a drain arrangement fitted at the lowest part of each receiver *yes*  
Starting High Pressure Air Receivers, No. *1* Cubic capacity of each *400 lt* Internal diameter *405 mm* thickness *17.5 mm*  
Seamless, lap welded or riveted longitudinal joint *seamless* Material *S. M. Steel* Range of tensile strength *44-50 kg/cm<sup>2</sup>* Working pressure by Rules *30 atm.* 85% Rule  
Starting Air Receivers, No. *2* Total cubic capacity *2 x 12000 lt* Internal diameter *1800 mm* thickness *31 mm*  
Seamless, lap welded or riveted longitudinal joint *riveted* Material *S. M. Steel* Range of tensile strength *41-47 kg/cm<sup>2</sup>* Working pressure by Rules *30 atm.*



IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

PLANS. Are approved plans forwarded herewith for Shafing *London letters E. 14.1.30; 27.3.30; 5.5.30*  
(If not, state date of approval)

Receivers *8.8.30*

Separate Tanks

Donkey Boilers

General Pumping Arrangements

Oil Fuel Burning Arrangements

SPARE GEAR as per Rules.

Maschinenfabrik Augsburg-Nürnberg A.G.

The foregoing is a correct description,

*Profeßor Dr. H. H. H. H.*

Manufacturer.

Dates of Survey while building  
During progress of work in shops - *4.5.15, 28. April; 2.20. May; 21. July; 6.19. 21. August; 1.3.8. 13.16.27.30. September; 4.6.13.14.20.21.22.25.27.28.29.30. October; 8.10.11.19.20.22.28.29. November; 12.3.8.9.10.16.17.18.23.24.27.29.30. December 1930; 2.3.5.6.14.15.16.17.19.20.21.22.30.31. Jan. 31.*  
During erection on board vessel -  
Total No. of visits

Dates of Examination of principal parts—Cylinders *1.12.30.* Covers *10/19. 11.30* Pistons *19.11.30* Rods *24/27.12.30* Connecting rods *18.12.30*

Crank shaft *10.11.30.* Flywheel shaft *17.1.31* Thrust shaft 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 *24/22.1.31 (test bed)*

Crank shaft, Material *S.M. Steel* Identification Mark *38757 & 20.10.30.* Flywheel shaft, Material *S.M. Steel* Identification Mark *F.S. 900. 30.8.30.*

Thrust shaft, Material Identification Mark Intermediate shafts, Material Identification Marks

Tube shaft, Material Identification Mark Screw shaft, Material Identification Mark

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

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo If so, have the requirements of the Rules been complied with

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. *This heavy oil engine and its accessories has been constructed under Special Survey in accordance with the Soc. Rules and Regulations as well as with the approved plans and instructions thereto. The materials used in the constructions are good and the workmanship is satisfactory. The engine has been tried on the makers test bench under running condition and was found working satisfactorily.*

In my opinion the vessel for which this engine and its accessories are intended will be eligible for the notation of *LMC* [with date] when the machinery has been fitted satisfactorily on board and tried under full working conditions

The working pressure in the cylinder of the main engine and of the auxiliaries not to exceed 45 atm  
A copy of this Report has been sent to the Kobe surveyors.

The amount *1/5* Entry Fee ... £ 4 : 16 :  
*1/5* Special ... £ 117 : 3 :  
Donkey Boiler Fee ... £ 8 : 8 :  
Travelling Expenses (if any) ... £ 4 : 0 :  
When applied for, *9.2.1931.*  
When received, *3/3/31*

Committee's Minute

Assigned

*See F. to Rpt.*

*L. J. H. H. H.*  
Engineer Surveyor to Lloyd's Register of Shipping.



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