

## REPORT ON OIL ENGINE MACHINERY.

No. 7716.

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Date of writing Report 26<sup>th</sup> May 1927 When handed in at Local Office19 Port of CopenhagenNo. in Survey held at Copenhagen  
Reg. Book.Date, First Survey 15<sup>th</sup> August 1927. Last Survey 16<sup>th</sup> May 1928  
Number of Visits 46.✓ on the Single Twin Triple Quadruple Screw vesselYARD No. 146.Tons } Gross ✓  
Net ✓Built at Fama, Japan.By whom built Mitsui Bussan Kaisha.Yard No. 146 When built ✓Engines made at CopenhagenBy whom made akt. Burmeister & WainEngine No. 1400 When made 1927-28

Donkey Boilers made at ✓

By whom made ✓

Boiler No. Designated MITSUI 5 When made ✓Brake Horse Power 2100

Owners ✓

Port belonging to ✓

Nom. Horse Power as per Rule 473

Is Refrigerating Machinery fitted for cargo purposes ✓

Is Electric Light fitted ✓

Trade for which vessel is intended ✓

OIL ENGINES, &c.—Type of Engines Vertical Diesel Oil Engine (Crosshead Type) 2 or 4 stroke cycle 4, Single or double acting Single.Maximum pressure in cylinders 35 kg/cm<sup>2</sup> Diameter of cylinders 630 mm = 24 13/16" Length of stroke 300 mm = 5 1/16" No. of cylinders 8 No. of cranks 8Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 892 mmIs there a bearing between each crank YesRevolutions per minute 120 Turning Flywheel dia. 1902 mm Weight 1160 kgMeans of ignition Air compression Kind of fuel used Crude oil, flash point above 150°FCrank Shaft, dia. of journals as per Rule 412.6 mm Crank pin dia. 414 mm Crank Webs Mid. length breadth 720 mm Thickness parallel to axis 266 mm  
as fitted 414 mm Mid. length thickness 266 mm shrunk Thickness around eyehole 193 mmFlywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule Thrust Shaft, diameter at collar as per Rule 12.39"  
as fitted as fitted as fitted 12 1/2"Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule Is the { tube } shaft fitted with a continuous liner {  
as fitted as fitted as fitted { screw }Bronze Liners, thickness in way of bushes as per Rule Thickness between bushes as per rule Is the after end of the liner made watertight in the  
as fitted as fitted as fitted

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 reversible Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Yes Means of lubricationForced lubrication Thickness of cylinder liners 44 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with  
non-conducting material Lagged 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. 1 off. Centrifugal, 120 tons. Is the sea suction provided with an efficient strainer which can be cleared within the vessel ✓Bilge Pumps worked from the Main Engines, No. 2 off Diameter of pumps 150 mm Stroke 234 mm Can one be overhauled while the other is at work YesPumps connected to the Main Bilge Line { No. and Size ✓  
How driven ✓Ballast Pumps, No. and size 1 off. Rotary wing pump, 150 tons Lubricating Oil Pumps, including Spare Pump, No. and size 2 off. Log wheel pumps, 45 tons each.Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Machinery Spaces ✓

In Holds, &amp;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. 1 off. No. of stages 3 Diameters 750-675-150 mm Stroke 440 mm Driven by the main engine

Auxiliary Air Compressors, No. ✓ No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓

Small Auxiliary Air Compressors, No. 1 off. No. of stages 2 Diameters 2 1/2" - 1 1/16" Stroke 5" Driven by hand

Scavenging Air Pumps, No. ✓ Diameter ✓ Stroke ✓ Driven by ✓

Auxiliary Engines crank shafts, diameter as per Rule 170 mm  
as fittedAIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule YesCan 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 I- 225 litresHigh Pressure Air Receivers, No. I-2 Spare for main & auxiliary engines Cubic capacity of each I- 450 " Internal diameter I- 450 " thickness I- 25 "  
Seamless, lap welded or riveted longitudinal joint Lap welded Material S.M. Steel Range of tensile strength 37.2-40.5 kg/mm<sup>2</sup> Working pressure by Rules I- 70.3 "

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 ✓



*If so, is a report now forwarded?*

### Receivers

### Separate Tanks

## Donkey Boilers

### General Pumping Arrangements

### Oil Fuel Burning Arrangements

SPARE GEAR as per accompanying list, to be checked when placed on board the vessel.

\*: The Intermediate and Screw shafts have not been made by Mess<sup>rs</sup> Burmeister & Wain.

**AKTIESELSKABET  
BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGGERI**

*Manufacturer.*

Dates of Survey while building { During progress of work in shops - 15, 22, 29 Aug. - 8, 29 Sept. - 17, 25, 29 Oct. - 3, 5, 8, 11, 15, 18, 28 Nov. - 3, 5, 12, 31 Dec. 1927 - 3, 5, 7, 18, 19, 23 Jan. - 2, 4, 7, 10, 13, 16, 23, 24, 27, 28 Feb. - 2, 5, 7, 9, 12, 14, 26 March. - 3, 26 April. - 8, 16 May 1928.  
During erection on board vessel -  
Total No. of visits 46.

(Total No. of visits. 70.)

Dates of Examination of principal parts—Cylinders and Covers 18/11, 3/12, 3/12, 27/1, 3/1, 23/1, 5/2, 27/1, 23/1, 15/3, 29/3, 15/11, 29/10, 5/11, 15/11  
Pistons 4/2, 13/2, 28. Rods 3/2, 27, 23/1, 28. Connecting rods 3/2, 27, 2/2, 28.

Crank shaft 17/10, 28/10, 8/11, 1/11, 27. Flywheel shaft 3/1, 10/2, 28. ✓ Thrust shaft 28/11, 12/12, 27, 2/3, 28. Intermediate shafts 1/2, 27, 23/1, 28. ✓ 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 S.M.7 Steel Identification Mark Q 10.2.28. Flywheel shaft, Material ✓ Identification Mark ✓

Thrust shaft, Material S.M.I. Steel Identification Mark K 2, 3, 28. 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 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 the material and workmanship have been examined from the commencement of construction of the engine until the final running test on the test bed in the shop.

The material used in the construction of the engine and air receivers has been tested as required by the Rules, either by us or as per certificates produced, and appended herewith.

The dimensions are as specified and in accordance with the Rules, the approved plans and as required in Secretary's letters E. dated the 5<sup>th</sup> and 23<sup>rd</sup> September 1927.

The engine has been tested under full power working condition on the test bed in shop and found to work satisfactorily.

Recommend the vessel to have notation in the Register Book of  LMC - with date, and record of OIL ENGINE, when the machinery has been fitted on board the vessel under supervision and to the satisfaction of the local Surveyors to this Society.

|                              |     |             |   |                   |
|------------------------------|-----|-------------|---|-------------------|
| The amount of Entry Fee      | ... | Rs. 72.80   | : | When applied for, |
| 4/5 Special                  | ... | Rs. 1397.03 | : | 30.5.1928         |
| Donkey Boiler Fee            | ... | Rs. :       | : | When received,    |
| Travelling Expenses (if any) | 4/5 | 1.60        | : | 2.7.28            |

Committee's Minute FRI. 26 OCT 1928  
Assigned See Robt H. 8 rpt. No. 6240

*A. O. Debeck. M. Clausen.*  
Engineer Surveyors to Lloyd's Register of Shipping.

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Foundation