

REPORT ON OIL ENGINE MACHINERY.

No. 8091.

Received at London Office 30 SEP 1929

Date of writing Report 28th Sept 1929. When handed in at Local Office 29th Sept 1929. Port of Copenhagen
No. in Survey held at Copenhagen Date, First Survey 8th February Last Survey 27th Sept 1929
Reg. Book. Number of Visits 53.

Single on the Twin Motor Screw vessel Tons { Gross ✓ Net ✓
Triple }
Quadruple }
Built at Yokohama By whom built Messrs. Yokohama Dock Co. Ltd. Yard No. 174 When built ✓
Engines made at Copenhagen By whom made Messrs. Akt. Burmeister & Wain Engine No. 1594 When made 1929
Donkey Boilers made at ✓ By whom made ✓ Designated OSAKA 2 Boiler No. ✓ When made ✓
Brake Horse Power 3000 Owners Messrs. Osaka Shosen Kaisha Port belonging to Osaka
Nom. Horse Power as per Rule 489 Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted ✓
Trade for which vessel is intended ✓

TYPE OF ENGINES, &c. Type of Engines Vertical Diesel Oil Engines. Crosshead type. Solid injection 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 35 kg/cm² Diameter of cylinders 740 mm = 29 1/8" Length of stroke 1500 mm = 59" No. of cylinders 6 No. of cranks 6

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1004 mm/m Is there a bearing between each crank Yes
Revolutions per minute 112 Wheel dia. 2136 mm Weight 1950 kg Means of ignition Air Compression Kind of fuel used Outside oil flash point above 150° F

Crank Shaft, dia. of journals as per Rule 470 mm/m as fitted 476 mm/m Crank pin dia. 476 mm/m Crank Webs Mid. length breadth 770 mm/m Thickness parallel to axis 310 mm/m
M. d. length thickness 290 mm/m shrunk Thickness around eye hole 217.5 mm/m

Flywheel Shaft, diameter as per Rule ✓ as fitted ✓ Intermediate Shafts, diameter as per Rule ✓ as fitted ✓ Thrust Shaft, diameter at collars as per Rule 14.175 mm/m as fitted 14 1/4" ✓

Tube Shaft, diameter as per Rule ✓ as fitted ✓ Screw Shaft, diameter as per Rule ✓ as fitted ✓ Is the { tube { screw } 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 ✓ If so, state type ✓ 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 lubrication
oil lubrication Thickness of cylinder liners 53.5 mm/m 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. 2 off. Centrifugal - 150 tons 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. 2 off. 20 tons Diameter of trunk 127 mm Stroke 288 mm/m 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 off. Cog wheel pumps, 50 tons 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 the Bilge Suctions in the Machinery Spaces

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. none No. of stages ✓ Diameters A. B. Stroke ✓ Driven by ✓

Auxiliary Air Compressors, No. 2 off No. of stages 2 Diameters 210 - 176 mm/m Stroke 216 mm/m Driven by Electro motors.

Small Auxiliary Air Compressors, No. 1 off No. of stages 2 Diameters 90 - 35 mm/m Stroke 120 mm/m Driven by Hand.

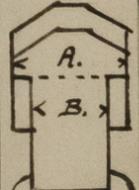
Scavenging Air Pumps, No. ✓ Diameter ✓ Stroke ✓ Driven by ✓

Auxiliary Engines crank shafts, diameter as per Rule 132 mm/m Auxiliary Diesel oil engines, 3 off. 4 Cyl. 4 S.C.S.R. - 150 B.H.P. each
as fitted 140 mm/m Cyl diam 230 mm/m Stroke 380 mm/m.

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

High Pressure Air Receivers, No. ✓ Cubic capacity of each ✓ Internal diameter ✓ thickness ✓
Seamless, lap welded or riveted longitudinal joint ✓ Material ✓ Range of tensile strength ✓ Working pressure by Rules ✓

Emergency Starting Air Receivers, No. 1 off Total cubic capacity 300 Litres Internal diameter 418 mm/m thickness 12 mm/m Working pressure by Rules 34.4 kg/cm²
Seamless, lap welded or riveted longitudinal joint Lap welded Material SM Steel Range of tensile strength 38.1 kg/mm² Working pressure by Rules 34.4 kg/cm²



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IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

PLANS. Are approved plans forwarded herewith for Shafting *no. 17th Sept. 28.* Receivers

Separate Tanks

Donkey Boilers

General Pumping Arrangements

Oil Fuel Burning Arrangements

SPARE GEAR *as per accompanying list.*

The foregoing is a correct description,

**ARTIESELSKABET
BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGERI**

W. Burmeister & Wain

Manufacturer.

Dates of Survey while building { During progress of work in shops - *Feb. 8, 15, 25, 26 - March 1, 13 - April 22, 24 - May 10, 16, 17, 18, 25 - June 4, 8, 13, 14 - July 2, 12, 13, 16, 17, 18, 19, 20, 23, 24 - Aug. 1, 2, 3, 6, 8, 9, 13, 15, 16, 17, 19, 22, 24, 26, 28 - Sept. 3, 6, 10, 12, 16, 18, 19, 21, 24, 26, 27 - 1929.*
During erection on board vessel -
Total No. of visits **53.**

Dates of Examination of principal parts - Cylinders *14/6, 12/7, 17/7, 23/7, 24/7* and Covers *3/8, 28/8, 29* Pistons *13/19, 23/6, 24* Rods *24/2, 13/3, 10/5* Connecting rods *25/2, 19/3, 22/4, 17/5, 14/6, 24/7, 24/8*
Crank shaft *13/7, 23/7, 3/8, 13/8, 29* Flywheel shaft Thrust shaft *13/8, 22/4, 10/5* 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 *3/6, 10/6, 16/9, 19/9, 29/9*

Crank shaft, Material *S.M. 1. Steel* Identification Mark *Nº 15/152* Flywheel shaft, Material Identification Mark

Thrust shaft, Material *S.M. 1. Steel* Identification Mark *Nº 38* 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. *Yes.*

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 *Yes* If so, state name of vessel *Copenhagen Report Nº 8041.*

General Remarks (State quality of workmanship, opinions as to class, &c.) *In accordance with the Society's Rules for Special Survey we have examined the material and workmanship from the commencement of construction of the main and auxiliary engines with their accessories until the final test under full power working condition on the test bed in the shop, and found all good and satisfactory.*

The material used in the construction of the engines and the air receiver has been tested as required by the Rules, either by us, or as per test certificates produced, issued by Surveyors to this Society.

The dimensions are as specified and in accordance with the Rules, the approved plans and the requirements contained in the Secretary's letter B dated the 17th September 1928.

The intermediate and screw shafts, plan of which was approved on the 17th Sept 28, have not been made here.

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

The amount of Entry Fee ... *4/5* £ 72.80 When applied for, *27.9.29*
Special ... £ 1431.98
Donkey Boiler Fee ... £ : : When received, *28.10.29*
Travelling Expenses (if any) £ 10.50

A. O. Jensen, L. Clausen
Principal Surveyors to Lloyd's Register of Shipping.

Committee's Minute **FRI. 2 MAY 1930**

Assigned *see F. E. Rpt*

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

