Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 8130.

Received at London Office -5 DEC 1929

Date of writing Report 2nd Decr 1929 When handed in at Local Office 19 Port of Copenhagen

No. in Reg. Book. Survey held at Copenhagen Date, First Survey 16th May Last Survey 30th November 1929. Number of Visits 46.

✓ on the Single / ~~Twin~~ / ~~Triple~~ / ~~Quadruple~~ Screw vessel Tons Gross ✓ Net ✓

Built at Yokohama By whom built Messrs Yokohama Dock Co., Ld. Yard No. 175 When built ✓

Engines made at Copenhagen By whom made Messrs akt. Burmeister & Wains Maskin og Skibsbyggeri. Engine No. 1598 When made 1929. Designated "OSAKA 3."

Donkey Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓

Brake Horse Power 3000 Owners Messrs Osaka Shosen Kabushiki Kaisha. Port belonging to Osaka - Japan

Nom. Horse Power as per Rule 489. 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 Solid injection.) 2 or 4 stroke cycle 4 Single or double acting Single

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

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1004 m/m Is there a bearing between each crank yes

Revolutions per minute 112 Turning ~~Fly~~wheel dia. 2136 m/m Weight 1950 kg. Means of ignition air compression Kind of fuel used Crude oil flash point above 150° F.

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

Flywheel Shaft, diameter as per Rule ✓ as fitted ✓ **Intermediate Shafts,** diameter as per Rule ✓ as fitted ✓ 12.95" **Thrust Shaft,** diameter at collars as per Rule 14.175" 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 declutched~~ yes Means of lubrication Forced lubrication ✓ Thickness of cylinder liners 53.5 m/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 each Diameter of trunks 127 m/m Stroke 288 m/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, 60 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 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~~ manoeuvring Air Compressors, No. 2 off No. of stages 2 Diameters 210 - 176 m/m Stroke 216 m/m Driven by Electro motors.

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

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

Auxiliary Engines crank shafts, diameter as per Rule 132 m/m. as fitted 140 m/m. Auxiliary Diesel oil engines, 3 off 4 cyl. 4 S.C.S.A. 150 BHP each. Cyl diam = 230 m/m. Stroke 380 m/m each working a direct coupled 100 K.W. Generator.

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 m/m. thickness 12 m/m.

Seamless, lap welded or riveted longitudinal joint Lap welded. Material S.M. Steel Range of tensile strength 38.1 kg/mm² Working pressure by Rules 34 kg/cm² ✓

© 2020 Lloyd's Register Foundation

006512-006522-0038

IS A DONKEY BOILER FITTED? ✓ If so, is a report now forwarded? ✓

PLANS. Are approved plans forwarded herewith for Shafting yes (If not, state date of approval) Receivers ✓ Separate Tanks ✓

Donkey Boilers ✓ General Pumping Arrangements ✓ Oil Fuel Burning Arrangements ✓

SPARE GEAR as per accompanying list.

The foregoing is a correct description,

AKTIESELSKABET BURMEISTER & WAINS MASKIN- OG SKIBSBYGGERI

Manufacturer.

Dates of Survey while building — During progress of work in shops: March 16, 21.- May 10.- June 14, 15.- July 12, 18, 23, 29.- Aug 1, 6, 7, 17, 29, 30.- Septbr 4, 13, 18, 23, 30.- Octbr 2, 10, 11, 15, 17, 18, 21, 23, 24, 25, 28, 29, 31.- November 2, 4, 11, 15, 19, 21, 22, 23, 25, 26, 28, 29, 30.- 1929.

During erection on board vessel: -

Total No. of visits 46.

Dates of Examination of principal parts—Cylinders — and — Covers 14/6, 13/7, 6/8, 23/9 10/10, 31/10. 29. Pistons 14/6, 23/7, 18/9, 21/10. 29 Rods 29/7, 6/8, 18/9, 29/10. 29. Connecting rods 13/7, 7/8, 4/9, 23/9, 25/10.

Crank shaft 2/3, 10/5, 14/6, 12/7, 30/6, 4/9, 17/10. 29. Flywheel shaft ✓ Thrust shaft 10/5, 14/6, 23/7, 17/8, 13/9. 29. 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 19/11, 21/11, 22/11, 23/11, 25/11.

Crank shaft, Material S.M.1. Steel. Identification Mark 329 - LLOYD'S. No 3284 17.10.29. Flywheel shaft, Material ✓ Identification Mark ✓

Crank webs of Cast Steel.

Thrust shaft, Material S.M.1. Steel. Identification Mark No 219. LLOYD'S 13.9.29 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. Please see Copenhagen Reports No 8041 & 8091.

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 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 it, as far as could be seen, to be good and efficient.

The material used in 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 E. dated the 17th September 1928.

The intermediate and screw shafts, plan of which was approved on the 27th Septbr 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.

4/5 £ = Kr 18.20.

The amount of Entry Fee ... Kr 72.80 :

4/5. Special ... ... Kr 1431.98 :

Donkey Boiler Fee ... £ : :

Travelling Expenses (if any) £ : :

When applied for, 3.12.1929.

When received, 7.1.1930

A. F. Erbech. Knud Langkilde Jensen.

Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute

Assigned

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.)

© 2020 Lloyd's Register Foundation