Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 8088.

Received at London Office 26 SEP 1929

Date of writing Report 23rd Sptbr. 1929. When handed in at Local Office 23rd Sptbr 1929. Port of Copenhagen

No. in Reg. Book. ✓ on the ~~Single~~ Twin ~~Triple~~ ~~Quadruple~~ Screw Motor vessel

Survey held at Copenhagen Date, First Survey 2nd November 1928 Last Survey 12th September 1929 Number of Visits 99.

Tons Gross ✓ Net ✓

Built at Yokohama By whom built Messrs Yokohama Dock Co. Ld. Yard No. 177 When built ✓

Engines made at Copenhagen By whom made Messrs Akt. Burmeister & Wain's Maskin og Skibsbyggeri. Engine No. 1602 1603 When made 1929. Designated N.Y.K 2.

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

Brake Horse Power 11,000 Owners Messrs Nippon Yusen Kaisha. Port belonging to Tokio.

Nom. Horse Power as per Rule 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 Engines (Crosshead type) 2 or 4 stroke cycle 4 Single or double acting ~~Single~~ Double

Maximum pressure in cylinders 35 kg/cm² Diameter of cylinders 680 m/m = 26 3/4" Length of stroke 1600 m/m = 63" No. of cylinders 2 × 8 No. of cranks 2 × 8

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 920 m/m 906 Is there a bearing between each crank yes

Revolutions per minute 110 Turning Flywheel dia. 1975 m/m Weight 2250 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 491 m/m as fitted 495 m/m ✓ Crank pin dia. 530 m/m Crank Webs Mid. length breadth 850 m/m M.d. length thickness 288 m/m shrunk Thickness parallel to axis 308 m/m Thickness around eyehole 232.5 m/m

Flywheel Shaft, diameter as per Rule ✓ as fitted ✓ **Intermediate Shafts,** diameter as per Rule ✓ 425 appd. as fitted ✓ **Thrust Shaft,** diameter at collars as per Rule ✓ as fitted 457 appd. ✓

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 65 m/m Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Top pipes lagged, bottom pipes water cooled 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. 4 off. Centrifugal pumps, 250 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. None 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 4 off. Rotary pumps, 200 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. 4 off, 2 on each engine No. of stages 3 Diameters 750 - 675 - 172 m/m Stroke 600 m/m Driven by the main engines

Auxiliary Air Compressors, No. 3 off No. of stages 3 Diameters 320 - 270 - 70 m/m Stroke 370 m/m Driven by the auxiliary engines

Emergency " — " — " 1 off " " " 3 — " — 210 - 176 - 45 m/m " - 180 m/m " " an electric motor

Small Auxiliary Air Compressors, No. 1 off No. of stages 2 Diameters 400 - - - - 350 m/m Stroke 250 m/m Driven by " " "

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

Auxiliary Engines crank shafts, diameter as per Rule 192 m/m as fitted journals 204 m/m, pins 220 m/m. Auxiliary Diesel oil engines 3 off, 6 cyl. 4 S.C.S.A. 490 BHP each. Cyl. diam. 330 m/m, Stroke 600 m/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. 7 off. Cubic capacity of each 2 off - 550 litres, 2 " - 300 —"— , 3 " - 80 —"— Internal diameter 9 3/4" thickness 450 m/m, 20 m/m, 3/8" Seamless, lap welded or riveted longitudinal joint Seamless Material S.M. Steel Range of tensile strength 47.5-49.4 kg/mm², 31.6-33.7 tons/□" Working pressure by Rules 97.5 kg/cm², 78.3 " "

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 ✓

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

PLANS. Are approved plans forwarded herewith for Shafting Cranks 11/10.28. No. Tunnel shafting 17/9 28 Receivers ✓ Separate Tanks ✓
(If not, state date of approval)

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

SPARE GEAR As per accompanying list.

The foregoing is a correct description,

AKTIESELSKABET
BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGGERI

H Blenne Manufacturer.

Dates of Survey while building — During progress of work in shops — Novbr. 6, 9, 15, 21, 23, 25, 29. - Decbr 4, 12. - 1928. - Jan 2, 3, 19, 21, 24, 31. - Febr. 4, 13, 19, 23, 27. - March 5, 7, 11, 14, 19, 20, 26. - April 3, 5, 8, 17, 20, 24, 29. - May 2, 4, 8, 14, 15, 16, 17, 22, 23, 24, 28, 29, 30, 31. June 1, 3, 4, 8, 11, 12, 13, 14, 15, 17, 18, 19, 21, 22, 24, 25, 26, 27, 29. - July 2, 3, 4, 9, 10, 11, 13, 16, 18, 19, 23, 24, 25, 26. - Aug. 2, 3, 6, 8, 13, 15, 16, 17, 19, 26, 27, 28. Septbr 3, 5, 6, 12. - 1929.

~~During erection on board vessel~~

Total No. of visits 99.

Dates of Examination of principal parts — Cylinders 19/1, 31/1, 13/2, 5/3, 26/3, 20/4. and Covers 28/5, 14/6, 19/6 29 Pistons 31/1, 23/2, 5/3, 20/4 Rods 4/12.28, 13/2, 7/3, 3/4. Connecting rods 9/11, 12/12.28, 13/2, 19/3, 20/4. 16/11, 29/4, 7/12.28, 21/1, 13/2, 19/3, 3/4, 24/4 7/3, 17/4, 4/5

Crank ~~shaft~~s 4/5, 15/6, 10/7.29 Flywheel shaft ✓ Thrust shaft 28/6, 1/7. 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 13/7, 16/7, 18/7, 19/7, 23/7, 25/7, 31/7, 3/8, 13/8, 17/8, 27/8, 28/8 29.

Crank shafts Material S.M.1. Steel Identification Mark LLOYD'S No 99 & 10 Q 4.5.29 Flywheel shaft, Material ✓ Identification Mark ✓
Crank webs - Cast steel

Thrust shafts Material S.M.1. Steel Identification Mark LLOYD'S No 122 & 123 K 11.7.29 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 ✓ If so, state name of vessel ✓

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 until the final running test under full power working condition on the test bed in the shop, and found them good and efficient in every respect.

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 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 letters E. dated the 11th & 29th October and 19th November 1928, - and the letters E dated the 11th & 29th October 1928 addressed to Messrs Burmeister & Wain.

The intermediate and screw shafts, plan of which was approved the 17th Septbr 1928 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 ... £ 87, 36 | When applied for, 24. 9. 1929.
4/5 Special ... ... £ 2253, 34
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ 27, 85 | When received, 13. 11. 1929

A. V. Arbech. A. Klausen
Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute WED. 11 JUN 1930

Assigned See Gen. Rept. No 4520

(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.)

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