Rpt. 4b

REPORT ON OIL ENGINE MACHINERY.

No. 1691.

Received at London Office. 25 NOV 1929

Date of writing Report. 15th Oct. 1929 When handed in at Local Office 15th Oct. 1929 Port of N A G A S A K I.

No. in Reg. Book. 14556. Survey held at Winterthur and Nagasaki. Date, First Survey 19th Apr. 1928 (Nag) Last Survey 30th Sept. 1929. Number of Visits 189 (Nag).

on the ~~Single~~ ~~Twin~~ ~~Triple~~ Quadruple Screw vessel "A S A M A M A R U". Tons Gross 16946.98 Net 10018.12

Built at Nagasaki. By whom built Mitsubishi Zosen Kaisha, Ld. Yard No. 450 When built 1929- 9.

Engines made at Winterthur. By whom made Sulzer Bros. Engine No. 5845 5852 5861 5866 When made 1929- 9.

Donkey Boilers made at Nagasaki. By whom made Mitsubishi Zosen Kaisha, Ld. Boiler No. 450 When made 1929- 9.

Brake Horse Power 16,000. (Total). Owners Nippon Yusen Kabushiki Kaisha. Port belonging to Tokio.

Nom. Horse Power as per Rule 4008. Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.

Trade for which vessel is intended Pacific:- Hongkong - San Francisco.

OIL ENGINES, &c.

Type of Engines Sulzer Diesel Engines. 2 or 4 stroke cycle 2 Single or double acting Single.

Maximum pressure in cylinders 550 lbs sq in. Diameter of cylinders 680 m/m Length of stroke 1000 m/m No. of cylinders 32 No. of cranks 32

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 870 m/m Is there a bearing between each crank Yes

Revolutions per minute 120 Flywheel dia. 2200 m/m Weight 7600 kg. Means of ignition Temperature due to Compression Kind of fuel used Heavy Fuel Oil.

Crank Shaft, dia. of journals as per Rule 439 m/m as fitted 450 m/m Crank pin dia. 450 m/m Crank Webs Mid. length breadth / shrunk Mid. length thickness / Thickness parallel to axis 280 m/m Thickness through eyehole 205 m/m

Flywheel Shaft, diameter as per Rule 439 m/m as fitted 450 m/m **Intermediate Shafts,** diameter as per Rule 349.2 m/m as fitted 365 m/m **Thrust Shaft,** diameter at collars as per Rule 439 m/m as fitted 450 m/m

Tube Shaft, diameter as per Rule / as fitted / **Screw Shaft,** diameter as per Rule 377.6 m/m as fitted 405 m/m Is the ~~Solid~~ screw shaft fitted with a continuous liner / Yes

Bronze Liners, thickness in way of bushes as per Rule 19.1 m/m as fitted 20.5 m/m Thickness between bushes as per rule 14.3 m/m as fitted 16 m/m Is the after end of the liner made watertight in the propeller boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner Yes

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 Yes

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 No Length of Bearing in **Stern Bush** next to and supporting propeller 1600 m/m

Propeller, dia. 13'-6" Pitch 18'-6" No. of blades 4 Material Bronze whether Moveable Yes Total Developed Surface 70 sq. feet

Method of reversing Engines Direct. Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication Forced Thickness of cylinder liners 53 m/m Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Yes 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 F.W. at 440 M³ per hour for Cylinders. 4 S.W. at 500 M³ per hour for coolers & compressors. 4 S.W. at 80 M³ per hour for pistons. 1 F.W. & 2 of each of the Sea water pumps spare. Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

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 4 @ 150 tons/hr. One @ 140 tons/hr. One @ 30 tons/hr. How driven Electric Motor.

Ballast Pumps, No. and size One 250 tons/hr. **Lubricating Oil Pumps,** including Spare Pump, No. and size 4 @ 50 M³/hr for bearings. 4 @ 8 " " crossheads. 2 of each Spare.

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 4 @ 4". 4 @ 3½". 2 @ 3½" (Bilge hats). 6 @ 2" Tunnel well. 1 @ 3" Ice chamber 2 @ 3"

In Holds, &c. No.1. 2 @ 3". No.2. 2 @ 3". No.3. 2 @ 3". No.4. 2 @ 3". No.5. 1 @ 3".

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 4 @ 7". 4 @ 6". One @ 3½".

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes 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 Yes

Are all **Sea Connections** fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Both.

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Overboard Discharges above or below the deep water line Both.

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

What pipes pass through the bunkers Forward hold suctions. How are they protected Pipe tunnel.

What pipes pass through the deep tanks " " " Have they been tested as per Rule Yes.

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

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 Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Bridge or U.D.

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. 8 (2 each eng) No. of stages 3 Diameters 570/480/170 Stroke 400 m/m Driven by Crank shaft.

Auxiliary Air Compressors, No. 1 (2 Cyls). 1 (4 Cyls). No. of stages 3 Diameters 340/295/75 Stroke 180 m/m Driven by Elec.motor.

Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 140/45 Stroke 150 m/m Driven by

Scavenging Air Pumps, No. 3- Turbo blowers. Intake Volume 12000 M³ per min. Driven by Elec.motor.

Auxiliary Engines crank shafts, diameter as per Rule as fitted

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 them L.P.Air Recs. manhole 300 & 400 m/m. H.P.Air Recs. 800 litres holes 270 m/m at each end. H.P.Air Recs. 150 litres hole 150 m/m at one end.

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

High Pressure Air Receivers, No. 4 Injection 4 Starting Cubic capacity of each 150 litres 800 litres Internal diameter 300 m/m 540 m/m thickness 15 m/m 28 m/m

Seamless, lap welded or riveted longitudinal joint Seamless. Material Steel Range of tensile strength 28-35 tons sq.in. Working pressure by Rules 110 kg/cm² 98 "

Starting Air Receivers, No. 4 Total cubic capacity 32 M³ Internal diameter 1600 m/m thickness 28 m/m

Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength 28-32 tons sq.in. Working pressure by Rules 427 lbs sq.in.

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

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

Donkey Boilers Yes *General Pumping Arrangements* Yes *Oil Fuel Burning Arrangements* Yes

SPARE GEAR As per the Rules and in addition. (See separate list)

The foregoing is a correct description,

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

S. Kawai *Manufacturer.*

GENERAL MANAGER.

Dates of Survey while building — *During progress of work in shops* / *During erection on board vessel*: 1928. Apr.19.Jul.18.20.24.26.Aug.2.10.14.15.16.17.21.22.24.27.28.30.31.Sep.3.4.5. 10.11.12.13.15.17.20.24.25.26.27.28.Oct.1.2.4.5.6.10.12.15.16.18.19.22.24.26.2 31.Nov.2.7.8.17.21.29 Dec 5.7.12.18.28 1929. Jan 7.8.10.11.17.18.20.22.23.24.25. 2.6.7.8.9.13.15.18.22.25.27.28.Mar 1.2.4.5.6.8.9.12.13.14.15.16.19.20.21.25.26. 30.Apr 1.2.4.5.8.9.10.11.13.16.17.18.19.20.22.25.26.27.May 1.2.4.6.9.10.13.14. 17.18.2.23.24.27.28.29 Jun 1.5.7.10.11.12.13.14.15.17.20.25.28 July 3.4.5.8.10. 26.27.29.Aug 1.5.14.15.16.17.19.20.21.22.23.24.28.30 Sep.2.5.9.10.14.25.30.

Nagasaki *Total No. of visits* 189.

Dates of Examination of principal parts—Cylinders Winterthur. 18-7-28 to 29-10-28 *Covers* 9-7-28 to 29-10-28 *Pistons* 9-7-28 to 29-10-28 *Rods* 9-7-28 to 29-10-28 *Connecting rods* 16-7-28 29-10

Crank shaft See below. *Flywheel shaft* and *Thrust shaft* 15-9-27 / 16-2-28 } Prague. *Intermediate shafts* 29-3-28 to 9-7-28 (Kobe) *Tube shaft* /

Screw shaft 28-9-28 to 6-10-28. *Propeller* 17 to 22-7-29. *Stern tube* 11-9-29 to 26-9-29. *Engine seatings* 31-10-28. *Engines holding down bolts* 27-2-29.

Completion of fitting sea connections 29-10-1928 *Completion of pumping arrangements* 10-9-29. *Engines tried under working conditions* 1-8-29.

Crank shaft, Material Ingot stl. *Identification Mark* See below *Flywheel shaft, Material* Ingot stl. *Identification Mark* See thrust

Thrust shaft, Material Ingot stl. *Identification Mark* LLOYD'S No.6468&6523 CRH 16-2-28. LLOYD'S No.3268&3269 CRH 15-9-27. *Intermediate shafts, Material* Ingot stl. *Identification Marks* See below.

Tube shaft, Material / *Identification Mark* / *Screw shaft, Material* Ingot Steel *Identification Mark* See below.

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

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.*

Identification Marks. Crank shafts.

Port wing:- LLOYD'S No.6911-6912 CRH 1-3-28. Starbd.wing:- LLOYD'S No.8010 NB 14-5-28. LLOYD'S No.13283 KH 10-3-28.
Port inner:- LLOYD'S No.7805 MB 22-12-27. LLOYD'S No.1258 MK 28-2-28. Starbd.inner:- LLOYD'S No.7019 GM 7-6-28. LLOYD'S No.6995 CRH 4-5-28.
Spare LLOYD'S No.8130 HJ 20-6-29.

Identification Mark. Intermediate shafts.

LLOYD'S No.1415 AW 19 or 20-6-28. LLOYD'S No.1398 AW 31-5-28 or 11-6-28.
" No.1343 AW 28-6-28. " No.1447 AW 30-6-28.
" No.1452 AW 9-7-28. " No.1315 YJ 29-3-28.
" No.1339 YJ 17-4-28. " No.1316 YJ 29-3-28.
" No.1323 YJ 2-4-28.

Identification Mark. Screw shafts.

Port wing:- LLOYD'S No.201332 GA 28-9-28. Starbd.wing:- LLOYD'S No.201344 G.A. 2-10-28.
inner:- LLOYD'S No.201206 GA 4-10-28. inner:- LLOYD'S No.201371 GA 6-10-28.
Spare:-LLOYD'S No.201252 GA 6-10-28. Spare:-LLOYD'S No.201241 GA 2-10-28.

The machinery constructed by Messrs. Sulzer Bros. Winterthur, has been satisfactorily installed in vessel, tried under full working conditions and found satisfactory.

The Machinery of this vessel is eligible in my opinion to have the record of ✠LMC, 9-29

Mean speed on trial 20.01 knots at 26'-0" draught.

Certificates of Castings & Forgings herewith enclose.

The amount of Entry Fee ... ¥		When applied for,
Installation Main Eng. Special ... ¥ 609:61		27. 9. 1929
Donkey Boiler Fee ... ¥ 215:43		When received,
Travelling Expenses (if any) £		29.11.1929

asm George Anderson & K. Kikigo
Engineer Surveyor to Lloyd's Register of Shipping.

TUE. 24 MAR 1931

Committee's Minute FRI. 29 NOV 1929

Assigned +LMC 9.29 Oil Engines
Clg 2 B.B. 12066

CERTIFICATE WRITTEN

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

LR-FAF-T812-66