Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 1940

Received at London Office 19 FEB 1934

Date of writing Report 22nd Jan. 1934 When handed in at Local Office 22nd Jan. 1934 Port of NAGASAKI.

No. in Reg. Book. 40259 in Sup. Survey held at NAGASAKI. Date, First Survey 19th Dec. 1933 Last Survey 10th Jan. 1934 Number of Visits 140.

on the ~~Twin~~ Single ~~Triple~~ ~~Quadruple~~ Screw vessel "KOYEI MARU". Tons Gross 6,774. Net 4,915.

Built at Nagasaki By whom built Mitsubishi Zosen Kaisha, Ld. Yard No. 550 When built 1934

Engines made at Nagasaki By whom made Mitsubishi Zosen Kaisha, Ld. Engine No. 550 When made 1934

Donkey Boilers made at Nagasaki By whom made Mitsubishi Zosen Kaisha, Ld. Boiler No. 550 When made 1934

Brake Horse Power 4,200. Owners Takachiho Shosen Kabushiki Kaisha Port belonging to Kobe

Nom. Horse Power as per Rule 839. Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes

Trade for which vessel is intended All seas.

OIL ENGINES, &c.—Type of Engines Mitsubishi Airless Injection. 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 45 Kg/cm² Diameter of cylinders 720 m/m Length of stroke 1250 m/m No. of cylinders 6 No. of cranks 6

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 960 m/m Is there a bearing between each crank Yes

Revolutions per minute 132 Flywheel dia. 2200 m/m Weight 5000 Kgs. Means of ignition Compression Kind of fuel used Diesel oil, F.P. above 150° F.

Crank Shaft, dia. of journals as per Rule 439.3 m/m as fitted 500 m/m Crank pin dia. 500 m/m Crank Webs Mid. length breadth 836 m/m Mid. length thickness 315 m/m shrunk Thickness parallel to axis 315 m/m Thickness around eyehole 227.5 m/m

Flywheel Shaft, diameter as per Rule 439.3 m/m as fitted 500 m/m **Intermediate Shafts,** diameter as per Rule 326.8 m/m as fitted 378 m/m **Thrust Shaft,** diameter at collars as per Rule 343.1 m/m as fitted 500 m/m

Tube Shaft, diameter as per Rule / as fitted / **Screw Shaft,** diameter as per Rule 359.6 m/m as fitted 415 m/m Is the ~~tube~~ screw shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 18.6 m/m as fitted 23 m/m Thickness between bushes as per rule 14 m/m as fitted 17 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 /

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 No If so, state type / Length of Bearing in **Stern Bush** next to and supporting propeller 1670 m/m

Propeller, dia. 15.5 ft Pitch 11.4 ft No. of blades 4 Material Bronze whether Moveable Moveable Total Developed Surface 76.3 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 56 m/m at top. Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers ~~xxxxxxxx~~ 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. 2 Jacket & Piston Cooling Pumps. 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 3 Reciprocating:- 1 @ 50 tons/hr. 1 @ 200 tons/hr. 1 @ 110 tons/hr. How driven Electric Motors.

Ballast Pumps, No. and size 2:- 1 @ 200 tons/hr. 1 @ 110 tons/hr. **Lubricating Oil Pumps,** including Spare Pump, No. and size 2 Rotary, 30 Cub.M/hr.

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 Side bilge 4 @ 3½": Cofferdam 2 @ 2": Bilge hat 2 @ 2": In Pump Room /

In Holds, &c. No.1 Hold 2 @ 3"; No.2 Hold 2 @ 3": No.3 Hold 2 @ 3": No.4 Hold 2 @ 7" (oil suction): No.5 Hold 2 @ 3": No.6 Hold 2 @ 3": Tunnel Well 1 @ 2½":

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 8": 2 @ 5":

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 Above

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 / 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 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 U.Dk Level in Eng.Rm.

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. 2. (Kobe Cert. No.3649.3650) No. of stages 3 Diameters 270x270x310 m/m Stroke 180 m/m Driven by Aux.Gen.Eng.

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

Small Auxiliary Air Compressors, No. 1. (Kobe Cert No.3491) No. of stages 2 Diameters 30x88 m/m Stroke 90 m/m Driven by Hot bulb Eng.

Scavenging Air Pumps, No. 6. Diameter 600 m/m Stroke 1250 m/m Driven by Main Engine.

Auxiliary Engines crank shafts, diameter as per Rule See Kobe Report. No.:— 3 off: 4 S.C.S.A. as fitted Attached herewith. Position — Lower Eng.Room.(1 P & 2 S).

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 and cleaned Yes Is a drain 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 / Actual /

Starting Air Receivers, No. 2. (Nag.Cert. No.781). Total cubic capacity 8 Cu.M.each. Internal diameter 1500 m/m thickness 38 m/m

Seamless, lap welded or riveted longitudinal joint T.R.D.B.S. Material Steel Range of tensile strength Shell-28-32 tons End- 26-30 tons Working pressure by Rules 47.1 Kg/cm² Actual 45 Kg/cm²

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

Is the donkey boiler intended to be used for domestic purposes only No

PLANS. *Are approved plans forwarded herewith for Shafting* App.date 8-5-1933. 28-3-1933 *(If not, state date of approval)* *Receivers* Yes *Separate Tanks* 28-1-1933

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

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes as per Rules and additions.

State the principal additional spare gear supplied See separare list.

The foregoing is a correct description,
NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.
T. Inagaki
GENERAL MANAGER
Manufacturer.

Dates of Survey while building — *During progress of work in shops* — *During erection on board vessel*: 1932. Dec 19.26. 1933. Jan 11.25.28 Feb 1.8.10.15.17.20.25 Mar 2.4.9.27 Apr 5.6.8.1[illegible] 15.18.19.21.24.28 May 1.5.6.9.10.12.17.20.22.24.29 June 3.6.7.8.9.13.16.20.22.24.[illegible] 28.29.30 July 1.3.4.5.7.8.10.11.12.17.18.19.21.22.24.25.26.27.28.29 Aug 2.3.5.7.8 10.12.14.16.17.18.19.21.23.24.25.26.28.30.31 Sep 5.2.7.11.16.18.21.22.25.26.27.28 Oct 3.4.14.18.19.23.26.27.28 Nov 1.7.8.10.11.13.16.17.20.21.22.25.28.30 Dec 8.15.[illegible] 19.21.22.27.29.30. 1934. Jan 6.9.10.

Total No. of visits 140.

Dates of Examination of principal parts—Cylinders 17-5-33 to 27-7-33 *Covers* 30-6-33 to 23-8-33 *Pistons* 4-3-33 to 12-8-33 *Rods* / *Connecting rods* 15-2-33 to 28-6-33

Crank shaft 25-1-33 to 30-6-33 *Flywheel shaft* 8-4-33 to 30-6-33. *Thrust shaft* See Flywheel shaft. *Intermediate shafts* 24-6-33 to 12-8-33 *Tube shaft* /

Screw shaft 16-6-33 to 7-8-33 *Propeller* 17-8-33 *Stern tube* 18/8/33 *Engine seatings* ✓ *Engines holding down bolts* 10-11-33

Completion of fitting sea connections 31-8-33 *Completion of pumping arrangements* 22-11-33 *Engines tried under working conditions* 21-12-33

Crank shaft, Material Ingot steel *Identification Mark* LLOYD'S No.729 & 729-A HDB. *Flywheel shaft, Material* Ingot steel *Identification Mark* LLOYD'S No.7[illegible] H.D.B. 30-6-33

Thrust shaft, Material Ingot steel *Identification Mark* See Flywheel shaft. *Intermediate shafts, Material* Ingot steel *Identification Mark* LLOYD'S No.74[illegible] to G. HDB o[illegible]

Tube shaft, Material / *Identification Mark* / *Screw shaft, Material* Ingot steel *Identification Mark* LLOYD'S No.7[illegible] H.D.B. 7-8-[illegible]

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 Yes

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Yes *If so, have the requirements of the Rules been complied with* Yes

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with /

Is this machinery duplicate of a previous case Yes *If so, state name of vessel* "Uyo Maru" Nag.Rpt No.1916.

General Remarks (*State quality of workmanship, opinions as to class, &c.*)

The Machinery of this vessel has been constructed under Special Survey in accordance with the Rules, and Approved plans.

The materials have been tested found efficient and the workmanship throughout is good.

This Machinery has been efficiently installed on board, tried under full load, overload and manoeuvr[illegible] conditions, with satisfactory results, afterwards the machinery was opened up examined and found in good order.

This case is eligible in our opinion have the notation of ✠LMC,1-34, in the Register Book.

Mean speed on trial 15.75 knots at 131.3 r.p.m. and 16.28 knots at 137.4 r.p.m. Slowest speed 6.16 knots at 45.2 r.p.m.

Note:- Due to the inclusion of a non water tight bulkhead in No.2 hold, 4- 3" dia bilge suctions in[illegible] of 2- 4" dia, as approved, have been fitted at request of Owners.

Forging and Casting certificates herewith.

The amount of Entry Fee ..	£ 6-0-0	When applied for, 12. 1. 1934
Special	£175-8-6	
Donkey Boiler Fee	£ 6-6-0	When received, 17. 1. 1934
Air Receivers / Travelling Expenses (if any)	£ 9-9-0	

H D Buchanan / T. Kumishu
Engineer Surveyor to Lloyd's Register of Shipping.

Certificate (if required) to be sent to

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

Committee's Minute TUE. 20 FEB 1934

CERTIFICATE WRITTEN

Assigned + Lmc. 1.34

C. L.

Oil Eng. D.B. 120 lb