

## REPORT ON OIL ENGINE MACHINERY.

No. 1580

Received at London Office

Date of writing Report 28th Mar 27 When handed in at Local Office 28th Mar. 27 Port of NAGASAKI.

No. in Survey held at NAGASAKI. Date, First Survey 22nd May 1926. Last Survey 3rd March 1927.  
Reg. Book. Number of Visits 111.on the ~~Single~~ ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel "CHOJO MARU". Tons <sup>Gross</sup> 2594.33 <sub>Net</sub> 1391.34

Built at Nagasaki. By whom built Mitsubishi Zosen Kaisha, Ltd. Yard No. 424. When built 1927.

Engines made at Nagasaki. By whom made Mitsubishi Zosen Kaisha, Ltd. Engine No. 424. When made 1927.

Donkey Boilers made at Glasgow. By whom made Cochran &amp; Co, Annan, Ltd. Boiler No. 10045. When made 1926.

Brake Horse Power 2300. Owners Osaka Shosen Kabushiki Kaisha. Port belonging to Osaka.

Nom. Horse Power as per Rule 582. Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.

Trade for which vessel is intended Tientsin. China.

OIL ENGINES, &amp;c.—Type of Engines Mitsubishi - Sulzer. 2 or 4 stroke cycle 2. Single or double acting Single.

Maximum pressure in cylinders 43 atm. Diameter of cylinders 600 m/m. Length of stroke 1060 m/m. No. of cylinders 6. No. of cranks 6.

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 810 m/m. Is there a bearing between each crank Yes.

Revolutions per minute 108. Flywheel dia. 2100 m/m. Weight 10,300 kg. Means of ignition Compression. Kind of fuel used Heavy fuel oil.

Crank Shaft, dia. of journals as per Rule 400 m/m. Crank pin dia. 405 m/m. Crank Webs Mid. length breadth 550 m/m. Thickness parallel to axis 225 m/m. Thickness around eyehole 315 m/m.

Flywheel Shaft, diameter as per Rule 400 m/m. Intermediate Shafts, diameter as fitted 12 1/2". Thrust Shaft, diameter at collars as per Rule 301 m/m. as fitted 390 m/m.

Tube Shaft, diameter as per Rule 336 m/m. Screw Shaft, diameter as fitted 13 3/4". Is the screw shaft fitted with a continuous liner Yes.

Bronze Liners, thickness in way of bushes as per Rule .704. Thickness between bushes as fitted 9/16". 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 One length.

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 4'-7 1/2".

Propeller, dia. 13'-0". Pitch 13'-6". No. of blades 4. Material Bronze. Whether Moveable Yes. Total Developed Surface 60 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 at top 45 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. 4. 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. 1. Diameter 1. Stroke 1. Can one be overhauled while the other is at work.

Pumps connected to the Main Bilge Line No. and size One 50 ton Bilge: One 100 ton G.S. pump: One 100 ton Ballast pump: How driven Electric motors.

Ballast Pumps, No. and size One 100 ton. Lubricating Oil Pumps, including Spare Pump, No. and size One 24 cm. per hour. One 2.5 cm. per hour (geared).

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 @ 3" &amp; 2 Hat boxes @ 2 1/2" E.R. Cofferdam 1 @ 2" Tunnel well 1 @ 2 1/2".

In Holds, &amp;c. Ford. Cofferdam 1 @ 2" No. 1 Hold 2 @ 3 1/2" Bunker 2 @ 2 1/2" No. 2 Hold 2 @ 3" Aft Cofferdam 1 @ 2".

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

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 Forward Hold Suctions. How are they protected Limbers.

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 Top platform.

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. No. of stages 3. Diameters 560/510/120. Stroke 350 m/m. Driven by Main Engine.

Auxiliary Air Compressors, No. 1. No. of stages 3. Diameters 325/290/65. Stroke 190 m/m. Driven by Elec. Motor.

Small Auxiliary Air Compressors, No. 1. No. of stages 2. Diameters 110/35. Stroke 120 m/m. Driven by Hot Bulb Eng.

Scavenging Air Pumps, No. One - Double. Diameter Rotary- 11,200 cu. ft. of air per min. Driven by Elec. Motor.

Auxiliary Engines crank shafts, diameter as per Rule 1. as fitted 1.

IR 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 Handholes.

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

High Pressure Air Receivers, No. 8. Cubic capacity of each 275 litres. Internal diameter 394 m/m. thickness 23 m/m.

Seamless, lap welded or riveted longitudinal joint Seamless. Material Steel. Range of tensile strength 28-35 tons. Working pressure by Rules 173.5 atm at 28 tons.

Starting Air Receivers, No. One. Total cubic capacity 5 cu. metres. Internal diameter 1200 m/m. thickness 11/16".

Seamless, lap welded or riveted longitudinal joint T.R.D.B.S. Material Steel. Range of tensile strength 28-32 tons. Working pressure by Rules 370 lbs sq. in.

Seamless, lap welded or riveted longitudinal joint T.R.D.B.S. Material Steel. Range of tensile strength 28-30 tons.

Lloyd's Register  
Foundation



IS A DONKEY BOILER FITTED?

Yes

If so, is a report now forwarded?

Yes

PLANS. Are approved plans forwarded herewith for Shifting

Yes

Receivers

Yes

Separate Tanks

Yes

Donkey Boilers No. (Glasgow)

General Pumping Arrangements

Yes

Oil Fuel Burning Arrangements

SPARE GEAR As per Rules and in addition:- ( See separate List).

The foregoing is a correct description,

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

Manufacturer.

Dates of Survey while building  
During progress of work in shops--  
During erection on board vessel--  
Total No. of visits

Dates of Examination of principal parts--Cylinders 29-10-26 Covers 8-11-26 Pistons 29-10-26 Rods 22-10-26 Connecting rods 22-10-26

Crank shaft 21-12-26 Flywheel 21-11-26 and Thrust shaft 21-11-26 Intermediate shafts 22-10-26 & 9-12-26 Tube shaft /

Screw shaft 27-11-26 Propeller 18-12-26 Stern tube 4-11-26 Engine seatings 10-12-26 Engines holding down bolts 20-1-27

Completion of fitting sea connections 18-12-26 Completion of pumping arrangements 17-2-27 Engines tried under working conditions 14-2-27

Crank shaft, Material Ingot steel Identification Mark LLOYD'S No. 229 & thrust R.C. 21-11-26 Flywheel shaft, Material Ingot steel Identification Mark R.C. 21-11-26

Thrust shaft, Material / Identification Mark / Intermediate shafts, Material Ingot steel Identification Marks LLOYD'S No. 229 & 9-12-26

Tube shaft, Material / Identification Mark / Screw shaft, Material Ingot steel Identification Mark LLOYD'S No. 229 R.C. 27-11-26

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.

The Main & Auxiliary Machinery have been constructed under Special Survey and installed in the vessel in accordance with the Rules and approved plans.

The materials and workmanship are good and the machinery has been examined under working condition and found satisfactory.

The machinery of this vessel is eligible in my opinion to have the record of LMC 3-27.