

REPORT ON OIL ENGINE MACHINERY.

No. 2328
FEB 14 1938

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Date of writing Report. 11th Jan. 1938 When handed in at Local Office 11th Jan. 1938 Port of NAGASAKI.
 No. in Survey held at NAGASAKI. Date, First Survey 17th Aug. 1936 Last Survey 23rd Dec. 1937.
 Reg. Book. Number of Visits 207
 37125 on the ~~Taka~~ ^{Single} Screw vessel "AWATA MARU" Tons Gross 7397.63 Net 4328.13
 Built at Nagasaki By whom built Mitsubishi Jukogyo K.K. Yard No. 688 When built 1937
 Engines made at Nagasaki By whom made Mitsubishi Jukogyo K.K. Engine No. 688 When made 1937
 Donkey Boilers made at Nagasaki By whom made Mitsubishi Jukogyo K.K. Boiler No. 688 When made 1937
 Brake Horse Power 8,000. Owners Nippon Yusen Kabushiki Kaisha. Port belonging to Tokyo.
 Nom. Horse Power as per Rule 2,248. Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
 Trade for which vessel is intended All Seas.

ALL ENGINES, &c.—Type of Engines Mitsubishi Airless Injection. 2 or 4 stroke cycle 2 Single or double acting Double
 Maximum pressure in cylinders 45 Kg/cm² Diameter of cylinders 720 m/m Length of stroke 1200 m/m No. of cylinders 8 No. of cranks 8
 Mean Indicated Pressure 5.3 Kg/cm². Flywheel dia. 2795 m/m Weight 2875 Kgs Means of ignition Compression Kind of fuel used Diesel Oil, F.P. above 150° F.
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1020 m/m Is there a bearing between each crank Yes
 Revolutions per minute 110 Crank pin dia. 510 m/m Crank Webs Mid. length breadth 860 m/m Thickness parallel to axis 320 m/m
 Crank Shaft, dia. of journals as per Rule App. London. as fitted 510 m/m Mid. length thickness 320 m/m Thickness around eye hole 242.5 m/m
 Flywheel Shaft, diameter as per Rule App. Lon. Intermediate Shafts, diameter as per Rule App. Lon. Thrust Shaft, diameter at collars as per Rule App. Lon.
 as fitted 510 m/m & 440 m/m as fitted 438 m/m as fitted 510 m/m
 Tube Shaft, diameter as per Rule / Screw Shaft, diameter as per Rule App. Lon. Is the ~~one~~ shaft fitted with a continuous liner Yes
 as fitted / as fitted 480 m/m
 Bronze Liners, thickness in way of bushes as per Rule 22.3 m/m Thickness between bushes as per rule 16.7 m/m Is the after end of the liner made watertight in the
 as fitted 25 m/m as fitted 25 m/m
 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
 aft / If so, state type / Length of Bearing in Stern Bush next to and supporting propeller 1950 m/m
 Propeller, dia. 5550 m/m Pitch 5000 m/m No. of blades 4 Material Bronze whether Moveable Moveable Total Developed Surface 10.6 M²
 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 45-40 m/m Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers 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. Two, Jacket & Piston Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes
 Large 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 2- Reciprocating:- 100 & 30 M³/H: 1- Rotary:- 110 M³/H:
 How driven Electric Motor.
 Is the cooling water led to the bilges No If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping
 arrangements /
 Ballast Pumps, No. and size 1- Recip: 100 M³/H: 1- Rotary: 110 M³/H: Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2- Rotary: 80 M³/H:
 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 Bilge well 3 @ 90 m/m: 2 @ 50 m/m: Coff. 4 @ 50 m/m: In Pump Room /
 No. 1 Hold 2 @ 80 m/m: & 1 @ 50 m/m: in Coff: No. 2 Hold 2 @ 90 m/m: No. 3 Hold 2 @ 80 m/m: No. 4 Hold
 Holds, & Deep Tr. 4 @ 80 m/m: Deep Tank Coff, 2 @ 50 m/m: No. 5 Hold 3 @ 90 m/m: No. 6 Hold 3 @ 80 m/m:
 Tunnel well 1 @ 80 m/m: dependent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 200 m/m: 1 @ 140 m/m:
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces
 from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes (Indep'n Suc: have rose box
 fitted).
 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 Below
 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
 Do all pipes pass through the bunks How are they protected /
 Do all 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
 apartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Same level as
 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. Two, (Kobe Cert. No. 6319) No. of stages 3 Diameters 80:360:310 m/m Stroke 180 m/m Driven by Aux. Engine,
 Auxiliary Air Compressors, No. One Cyl: of 30 KW Gen. set. No. of stages 1 Diameters 150 m/m Stroke 230 m/m Driven by 30 KW Gen. eng.
 Small Auxiliary Air Compressors, No. One No. of stages 2 Diameters 32x80 m/m Stroke 80 m/m Driven by Hand.
 Ventilating Air Pumps, No. 8 Diameter 840 m/m Stroke 1200 m/m Driven by Main engine.
 Auxiliary Engines crank shafts, diameter as per Rule See Kobe Report (No Number) No. 3 @ 220 K.N. & 1 @ 30 K.N.
 as fitted attached hereto. Position Engine room at floor level.

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. Two (Nag.cert No. 1842) **Total cubic capacity** **36 Cub.M.** **Internal diameter** **1850 m/m** **thickness** **31 m/m.**
Seamless, lap welded or riveted longitudinal joint **T.R.D.B.S.** **Material** **Steel** **Range of tensile strength** **44-55 Kgs** **Working pressure** by Rules **31 Kg/cm2** **Actual** **30 "**

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 **17-6-36 & 22-8-36** Receivers **10-11-36** Separate Fuel Tanks **10-2-37**
(If not, state date of approval)
Donkey Boilers **10-11-36** General Pumping Arrangements **26-5-37** Pumping Arrangements in Machinery Space **12-2-37**
Oil Fuel Burning Arrangements **8-11-37**

SPARE GEAR.

Has the spare gear required by the Rules been supplied **Yes** ✓
State the principal additional spare gear supplied **Same as "Asaka Maru" Nag.Rpt No.2324.**

The foregoing is a correct description.

Signature
Manufacturer.
GENERAL-MANAGER

1936: Aug 17, 28 Sep 4, 19, 24, 28, 30 Oct 1, 2, 15, 19, 22, 28, 30 Nov 9, 11, 12, 13, 14, 20, 28, 30
Dec 4, 9, 18, 23, 24, 26, 28, 30 1937: Jan 6, 9, 11, 12, 15, 16, 21, 23, 25, 29, 30 Feb 4, 5, 9, 12, 13, 14, 15, 16, 17, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Mar 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Apr 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 May 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Jun 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Jul 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Aug 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Sep 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Oct 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Nov 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 Dec 1, 7, 9, 10, 11, 13, 14, 16, 17, 18, 23.
Dates of Survey while building { During progress of work in shops - - { 15-22-36 to 24-4-37
During erection on board vessel - - { 24-4-37 to 27-7-37
Total No. of visits **207.**

Dates of Examination of principal parts—Cylinders **9-6-37 to 9-6-37** Covers **25-3-37 to 26-7-37** Pistons **11-3-37 to 11-3-37** Rods **23-3-37 to 23-3-37** Connecting rods **8-1-37 to 8-1-37**
Crank shaft **19-10-36 to 24-4-37** Flywheel shaft **29-12-36 to 24-4-37** Thrust shaft **See F.wheel shaft.** Intermediate shafts **22-3-37 to 27-7-37** Tube shaft /
Screw shaft **15-3-37 to 27-7-37** Propeller **27-5-37 to 24-4-37** Stern tube **3-5-37** Engine seatings **23-7-37** Engines holding down bolts **9-10-37**
Completion of fitting sea connections **3-8-37** Completion of pumping arrangements **16-11-37** Engines tried under working conditions **1-12-37**
Crank shaft, Material **Ingot steel** Identification Mark **LR No.1729 & 1729-A. TK.** Flywheel shaft, Material **Ingot steel** Identification Mark **LR No.1730 TK**
Thrust shaft, Material **Ingot steel** Identification Mark **See F.wheel shaft.** Intermediate shafts, Material **Ingot steel** Identification Marks **LR No.1826 HDB**
Tube shaft, Material / Identification Mark / Screw shaft, Material **Ingot steel** Identification Mark **LR No.1833 HDB**
Spare Tail shaft:- **LR No.1887 HDB.**

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 **"Asaka Maru".**

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

This Machinery has been constructed under special survey in accordance with the Rules & Approved plan
The materials have been tested found efficient and the workmanship throughout is good.
Full load, over load & governor tests were carried out with engine connected to hydraulic brake with satisfactory results, afterwards all parts opened up examined and all found good.
This machinery has now been efficiently installed on board tested under full load, overload, manoeuvring (12 stops & starts) and slow running (35-40 rpm) conditions with satisfactory results.

A mean speed of 18.346 knots was obtained on light draught at 115.9 rpm.
After completion of trials, 2 cylinders with rods, crank journals & crank pins of main engine & one Auxiliary engine in its entirety, pumps, compressors &c opened up examined and found in good order.
This case is eligible in our opinion to have the record of **LMC, 12-37 in the Register Bk.**

The amount of Entry Fee .. £ **6-0-0** : When applied for,
Special £ **195-5-0** : **27. 12. 1937**
Donkey Boiler Fee £ **5-5-0** :
Air Receivers £ **10-0-0** :
Travelling Expenses (if any) £ : **23. 2. 1938**

Signature
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **18 FEB 1938**

Assigned + Lmc 12.37 **611 Eng**
100 lb **OK**



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Foundation