

REPORT ON OIL ENGINE MACHINERY.

No. **2328**
FEB 14 1938

Received at London Office

Date of writing Report **11th Jan. 38** When handed in at Local Office **11th Jan. 38** Port of **NAGASAKI.**

No. in Survey held at **NAGASAKI.** Date, First Survey **17th Aug. 1936** Last Survey **23rd Dec. 1937.**
Reg. Book. **37125** on the **Single** Screw vessel **"AWATA MARU"** Tons ^{Gross} **7397.63** _{Net} **4328.13**
Number of Visits **207**

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.**

MAIN 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 **1200m/m** No. of cylinders **8** No. of cranks **8**
Mean Indicated Pressure **5.3 Kg/cm²** 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** Flywheel dia. **2795 m/m** Weight **2875 Kgs** Means of ignition **Compression** Kind of fuel used **Diesel Oil, F.P. above 150° P.**
Crank Shaft, dia. of journals as per Rule **App. London.** Crank pin dia. **510 m/m** Crank Webs Mid. length breadth **860 m/m** Thickness parallel to axis **320 m/m**
as fitted **510 m/m** Mid. length thickness **320 m/m** Thickness around eyehole **242.5m/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 **510m/m & 440m/m.** as fitted **438 m/m** as fitted **510 m/m**
Screw Shaft, diameter as per Rule **App. Lon.** Is the ~~box~~ screw shaft fitted with a continuous liner **Yes**
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
provided **Thicknes of cylinder liners 45-40 m/m** Are the cylinders fitted with safety valves **Yes** Are the exhaust pipes and silencers ~~lagged with~~ 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: 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 @ 80m/m & 1 @ 50m/m, in Coff; No. 2 Hold 2 @ 90m/m: No. 3 Hold 2 @ 80m/m: No. 4 Hold
4 @ 80m/m: Deep Tank Coff, 2 @ 50m/m: No. 5 Hold 3 @ 80m/m: No. 6 Hold 3 @ 80m/m:
Tunnel well 1 @ 80m/m:
Independent 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**
How are they protected **/**
Are they 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**
bridge deck.
On 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.**
Lubricating 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) attached hereto.** Position **Engine room at floor level.**
as fitted **3 @ 220 KN. 4 @ 20 KN.**

Handwritten initials and date:
16/2/38

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 Shafts **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
GENERAL-MANAGER
MANUFACTURER.

Dates of Survey while building	During progress of work in shops --	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, 10, 12, 13, 14, 15, 18, 19, 20, 21, 22, 24, 25, 26, 27, 29, 31, Mar 1, 2, 4, 5, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, Apr 1, 2, 5, 6, 7, 9, 10, 11, 12, 13, 14, 17, 19, 20, 21, 22, 24, 25, 26, 27, 29, 30, 31, May 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, Jun 2, 3, 5, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, Jul 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, Aug 3, 4, 5, 7, 10, 11, 12, 13, 14, 15, 16, 20, 21, Nov 5, 8, 10, 11, 16, 17, 19, 20, 22, 23, 24, 26, 28, 29, 30, Dec 1, 7, 9, 10, 11, 13, 14, 16, 17, 18, 23.	
		During erection on board vessel --	
		Total No. of visits	207.

Dates of Examination of principal parts—Cylinders **9-6-37 to 7-7-38** Covers **25-7-37 to 26-7-37** Pistons **11-3-37 to 5-8-37** Rods **23-3-37 to 23-3-37** Connecting rods **8-1-37 to 8-7-37**

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 **22-2-37 to 27-7-37** Tube shaft /

Screw shaft **15-2-37 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, manoeuvre

ing (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** : When received,

Air Receivers £ **10-20-0** : **23. 2. 1938**

Travelling Expenses (if any) £ : **23/2**

Committee's Minute **FRI 18 FEB 1938**

Assigned + LMC 12.37 Oil Eng

100 lb

Signature
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.