

# REPORT ON OIL ENGINE MACHINERY.

No. 2176

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This Report 28th Sep 36 When handed in at Local Office 28th Sep 36 Port of NAGASAKI.Survey held at NAGASAKI. Date, First Survey 6th July 1935 Last Survey 18th Sep 19 36  
Number of Visits 190.on the Single Screw vessel "AKAGI MARU" Tons { Gross 7386.83  
Triple } Net 4329.02  
Quadruple }made at Nagasaki By whom built Mitsubishi Jukogyo K.K. Yard No. 627 When built 1936Boilers made at Nagasaki By whom made Mitsubishi Jukogyo K.K. Engine No. 627 When made 1936Horse Power 8,000. Owners Nippon Yusen Kabushiki Kaisha. Port belonging to TokioHorse Power as per Rule 2,248. Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yeswhich vessel is intended All seas. 28 3/4 — 47 1/2GINES, &c.—Type of Engines Mitsubishi Airless Injection 2 or 4 stroke cycle 2 Single or double acting DoublePressure in cylinders 45 Kg/cm<sup>2</sup> Diameter of cylinders 720 m/m Length of stroke 1200 m/m No. of cylinders 8 No. of cranks 8Rated Pressure 5.3 Kg/cm<sup>2</sup> Rings, adjacent to the Crank, measured from inner edge to inner edge 1020 m/m Is there a bearing between each crank YesRevolutions per minute 110 Flywheel dia. 2795 Weight 2365 Kgs Means of ignition Compression Kind of fuel used Diesel oil F.P.Pitch, 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/mas fitted 510 m/m Mid. length thickness 320 m/m Thickness around eyehole 242.5 m/mShaft, 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 to 440 m/m. as fitted 438 m/m as fitted 510 m/mPitch, diameter as per Rule App.Lon. Screw Shaft, diameter as per Rule App.Lon. Is the Yes shaft fitted with a continuous liner { Yesas fitted 480 m/m as fitted 480 m/m 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 theas fitted 25 m/m as fitted 25 m/m Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner. YesDoes 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 YesIf so, state type Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube YesIf so, state type Yes Length of Bearing in Stern Bush next to and supporting propeller YesDia. 5550 m/m Pitch 5000 m/m No. of blades 4 Material Bronze whether Moveable Moveable Total Developed Surface 10.6 M<sup>2</sup>reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubricationThickness of cylinder liners 45-40m/m Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged withinsulating 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. YesWater Pumps, No. 2 Jacket & Piston. Is the sea suction provided with an efficient strainer which can be cleared within the vessel YesPumps worked from the Main Engines, No. 1 Diameter 100 Stroke 30 Can one be overhauled while the other is at work YesConnected to the Main Bilge Line { No. and Size 2 Reciprocating, 100 & 30 M<sup>3</sup>/H. 1 Rotary, 110 M<sup>3</sup>/H. How driven Electric motor.If 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 pumpingPumps, No. and size 1 Recip. 100 M<sup>3</sup>/H. 1 Rotary 110 M<sup>3</sup>/H. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 Cog.wheel 80M<sup>3</sup>/H.Independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilgeand size:—In Machinery Spaces Bilge well 3 @ 90m/m. 2 @ 50m/m. Coff.4 @ 50m/m. Hat 1 @ 90m/m Pump Room

No.1 hold 2 @ 80m/m &amp; 1 @ 50m/m: in Coff: No.2 hold 2 @ 90m/m: No.3 hold 2 @ 80m/m: No.4 hold

(deep tank) 4 @ 80m/m: No.5 hold 3 @ 80m/m: No.6 hold 1 @ 80m/m: Tunnel well 1 @ 80m/m:

Direct Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 200 m/m, 1 @ 140 m/m.Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaceseasily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges YesConnections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks YesAre 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 BelowAre 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 YesHow are they protected Yes Have they been tested as per Rule YesAre cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

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

to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Same level as bridge deckOn vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork YesCompressors, No. 2 (Kob.cert 5251) No. of stages 3 Diameters 80x310/360 Stroke 180m/m Driven by Aux.engineAir Compressors, No. One Cyl. of 30 KW Generator set No. of stages 1 Diameters 150 m/m Stroke 230 m/m Driven by 30 K.W.Gen. engine.Auxiliary Air Compressors, No. One No. of stages 2 Diameters 32 x 80 Stroke 80 m/m Driven by HandAir Pumps, No. 8 Diameter 840 m/m Stroke 1200 m/m Driven by Main engineEngines crank shafts, diameter as per Rule See Kobe report No.9746, attached herewith. 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 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. 1847) Total cubic capacity **36 Cub.M.** Internal diameter **1850 m/m** thickness **31 m**

Seamless, lap welded or riveted longitudinal joint **T.R.D.B.S.** Material **Steel** Range of tensile strength **44 to 55** Working pressure by Rules **31 Kg** Actual **30 Kg**

**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 **20-6-35** Receivers **12-9-35** Separate Tanks **14-11-35**

Donkey Boilers **20-12-35** General Pumping Arrangements **25-9-35** Oil Fuel Burning Arrangements **15-1-36**

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied. **Yes.** ✓

State the principal additional spare gear supplied **See separate list, forwarded under separate cover.**

The foregoing is a correct description,  
NAGASAKI WORKS, MITSUBISHI JUKYOYO KABUSHIKI KAISHA.  
K. Shimidzu Manufacturer.

Table with columns for dates (1935) and descriptions of work in shops and on board vessel. Total No. of visits: 190.

Dates of Examination of principal parts—Cylinders 10-2-36 to 18-2-36 Covers 6-2-36 to 19-3-36 Pistons 6-2-36 to 5-8-36 Rods 4-2-36 to 4-3-36 Connecting rods 10-2-36 to 27-2-36

Crank shaft 27-1-36 Flywheel shaft 22-2-36 Thrust shaft See Flywheel shaft Intermediate shafts 18-5-35 to 22-5-36 Tube shaft /

Screw shaft 22-5-36 Propeller 9-5-36 Stern tube 8-2-36 Engine seatings / Engines holding down bolts 9-7-36

Completion of fitting sea connections 5-6-36 Completion of pumping arrangements 17-8-36 Engines tried under working conditions 19-8-36

Crank shaft, Material Ingot steel Identification Mark LLOYD'S No. 1271 & 1271-A. HDB Flywheel shaft, Material Ingot steel Identification Mark HDB

Thrust shaft, Material " " Identification Mark See Flywheel shaft Intermediate shafts, Material Ingot steel Identification Marks LLOYD'S No. 1271 & AtoE. HDB

Tube shaft, Material / Identification Mark / Screw shaft, Material Ingot steel Identification Mark LLOYD'S No. 1387 HDB Spare Screw shaft:- LLOYD'S No. 1387 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 **No** If so, state name of vessel /

**General Remarks** (State quality of workmanship, opinions as to class, &c. **The machinery has been constructed under Survey in accordance with the Rules and approved plans.**

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

**Full load, overload & governor tests were carried out with engine connected to hydraulic brake with satisfactory results, afterwards all parts opened up examined and all found good, except the cast steel top pistons which were found to have developed small cracks on the water side of the crowns were replaced by forged steel crowns.**

**The machinery has now been efficiently installed on board tested under full load and 5% overload manoeuvring (12 stops & starts) and slow running (30-40 r.p.m) conditions with satisfactory results. A mean speed of 18.979 knots was obtained on light draught at 118 Rev./minute. Upon completion of trials all parts of main engines, compressors &c opened up, examined and found good condition.**

**This case is eligible in our opinion to have the record of LMC 9.-'36 in the Register Book.**

Table with columns for fee type (Entry Fee, Special, Donkey Boiler Fee, Air Receivers, Travelling Expenses) and amount (£).

A.D. Buchanan & T. Kimister  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute 13 NOV 1936  
Assigned + L.M.C. 9.36  
D.B. 100th

