

# REPORT ON OIL ENGINE MACHINERY.

No. 799

Received at London Office

Date of writing Report 1 March 1952 When handed in at Local Office 19 Port of Kobe

Survey held at Aioi Japan Date, First Survey 31st July 1951 Last Survey 13 Feb. 1952

Number of Visits 96

Single on the Twin Triple Quadruple } Screw vessel M/V "TAIEI - MARU" Tons { Gross 11867.82 Net 8891.61

By whom built Aioi Japan. THE HARIMA SHIPBUILDING & ENGINEERING CO., LTD. Yard No. 467 When built Feb. 1952.

By whom made Aioi Japan. THE HARIMA SHIPBUILDING & ENGINEERING CO., LTD. Engine No. 107 When made Oct. 1951.

By whom made Aioi Japan. THE HARIMA SHIPBUILDING & ENGINEERING CO., LTD. Boiler No. B 739 When made Nov. 1951.

Indicated Horse Power 7000 Service R.P.M. 6000 119 Owners KYOEI TANKER K. K. Port belonging to Kobe

Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes

Is Power as per Rule 1397.7

Trade for which vessel is intended Ocean going.

23 JUL 1952

**CRANKSHAFT ENGINES, &c.** — Type of Engines Solid injection Diesel 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 56.5 kg/cm<sup>2</sup> Diameter of cylinders 720 mm. Length of stroke 1250 mm. No. of cylinders 10 No. of cranks 10

Indicated Pressure 5.94 kg/cm<sup>2</sup> Ahead Firing Order in Cylinders 1-8-7-4-3-10-5-2-9-6 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 930 mm. Is there a bearing between each crank Yes Revolutions per minute 125

Wheel dia 2424 mm. Weight 1340 kgs Moment of inertia of flywheel (lbs in<sup>2</sup> or Kg. cm<sup>2</sup>) 50000000 Means of ignition Compression Kind of fuel used Diesel oil

Crankshaft, dia. of journals as per Rule 480.1 mm. as fitted 490 mm. Crank pin dia 490 mm. Crank webs Mid. length breadth 845.8 mm. Thickness parallel to axis 305 mm. Mid. length thickness 305 mm. Thickness around eyehole 243 mm.

Flywheel Shaft, diameter as per Rule - as fitted - Intermediate Shaft, diameter as per Rule 389.76 mm. as fitted 450 mm. Thrust Shaft, diameter at collars as per Rule 409.25 mm. as fitted -

Propeller Shaft, diameter as per Rule - as fitted - Screw Shaft, diameter as per Rule 427.26 mm. as fitted 490 mm. Is the {tube} shaft fitted with a continuous liner { Yes

Ronze Liners, thickness in way of bushes as per Rule 20.6 mm. as fitted 23 mm. Thickness between bushes as per Rule 15.45 mm. as fitted 18 mm. 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 -

Does 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 tube shaft - If so, state type - Length of bearing in Stern Bush next to and supporting propeller 2200 mm.

Propeller, dia. 5400 mm. Pitch 3753.6 mm. No. of blades 4 Material MnBC whether moveable Moveable Total developed surface 101 sq. feet

Moment of inertia of propeller (lbs in<sup>2</sup> or Kg. cm<sup>2</sup>) 791840000 Kind of damper, if fitted -

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 mm. Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled lagged with non-conducting material Lagged 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. 3 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 125 mm. Stroke 150 mm. Can one be overhauled while the other is at work Driven by clutch

Pumps connected to the Main Bilge Line { No. and size 1-Bilge sanitary pump (15%) 1-Butterworth pump (80%) 1-Ballast pump (180%) 1-G.S. pump (60%) How driven main engine steam steam 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 1-230 x 280 x 280 = 80% (Eng. room) 1-125 x 150 x 180 = 30% (Fore pump) Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2, 270/1 gear type 110 HP motor driven

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 1-4" (P-Fore) 1-4" (S-Fore) 1-4" (P-Aft) 1-4" (S-Aft) In pump room Fore pump room 1-2" Bilge-Ballast pump (aft) Middle pump room 2-4" Shipper pump (P.S) 1-10" Emergency (Sea water cooling pump)

Independent Power Pump Direct Suctions to the engine room bilges, No. and size 1-4" (G.S. pump) 1-6" (Ballast pump)

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suction 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 efficiently 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

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 No Is it fitted with a watertight door - worked from -

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. - No. of stages - diameters - stroke - driven by -

Auxiliary Air Compressors, No. 2 No. of stages 2 diameters 190, (190-170) mm. stroke 150 mm. driven by D.C. Motor

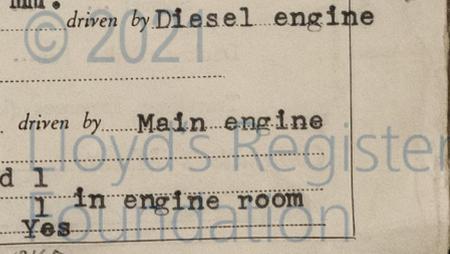
Small Auxiliary Air Compressors, No. 1 No. of stages 2 diameters 80mm (80-70) mm stroke 70 mm. driven by Diesel engine

What provision is made for first charging the air receivers Emergency air compressor manual driven

Scavenging Air Pumps, No. 10 diameter 950 mm. stroke 520 mm. driven by Main engine

Auxiliary Engines crank shafts, diameter as per Rule 159.894 mm. as fitted 200 mm. Position Fore Starboard 1 Port 1 in engine room

Have the auxiliary engines been constructed under special survey Yes Is a report sent herewith Yes



AIR RECEIVERS:—Have they been made under survey **Yes** State No. of report or certificate **M 5383**

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**

Injection Air Receivers, No. **-** Cubic capacity of each **-** Internal diameter **-** thickness **-**

Seamless, welded or riveted longitudinal joint **-** Material **-** Range of tensile strength **28.5-29.8 TT/in"** Working pressure by Rules **-** Actual **-**

Starting Air Receivers, No. **2** Total cubic capacity **10.5M<sup>3</sup> x 2** Internal diameter **1850 mm.** thickness **38 mm.**

Seamless, welded or riveted longitudinal joint **Riveted** Material **O. H. Steel** Range of tensile strength **-** Working pressure by Rules **137.5** Actual **126.6**

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 **6-1-50, 15-10-51** Receivers **10-4-51** Separate fuel tanks **1-9**

Donkey boilers **10-8-51** General pumping arrangements **16-10-51** Pumping arrangements in machinery space **16-10-51**

Oil fuel burning arrangements **16-10-51**

Have Torsional Vibration characteristics been approved **Yes** Date of approval **15-10-51**

**SPARE GEAR.**

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

State the principal additional spare gear supplied **13-Piston Rings (No.1, No.2), 6-Piston Rings (No.3-No.6), 8 set Fuel (complete), 1set starting valve 1set Indicator valves (complete), 9-Fuel delivery pipes with unions nipples. 9-Plungers with barrels for fuel pump. 18-Suction & delivery valves with seat for fuel pump 9-Push rods with bushes for fuel pump, 2 bolts with nuts for crank pin bearing, 2 bolts with nuts for crosshead bearings, 8set-Valve plates of suction & delivery valve for scavenging air pump, 9-Outside spring for plunger for fuel pump, 9-Inside spring for fuel pump, 9-Spring for delivery valves for pump. 9-Spring for suc. valve for fuel pump, 9-Spring for push rod for fuel pump.**

The foregoing is a correct description,

*M. Yoshizawa*  
THE HARIMA SHIPBUILDING AND  
ENGINEERING COMPANY, LTD.  
Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1950: JUL 31. AUG 9. OCT. 30. Nov. 18. DEC 1. 8. 1951- JAN 13. 17. 22. 25. FEB 5. 10. 15. 19. 26. MAR. 8. 14. 16. 22. 26. 29. APR. 2. 9. 12. 16. 26. MAY 2. 7. 9. 11. 15. 19. 26. 29. 31. JUN 2. 4. 5. 7. 12. 13. 14. 19. 25. 27. 30. JUL 3. 4. 7. 10. 12. 14. 19. 21. 24. 28. AUG 7. 9. 11. 14. 18. 21. 23. 28. 30. SEP. 1. 4. 6. 11. 13. 15. 17. 20. 24. OCT. 1. 4. 6. 9. 11. 18. 20. Nov. 5. 13. 15. 17. 20. DEC. 4. 6. 11.

During erection on board vessel -- 1952: Jan. 15, 26, 28, 30 Feb. 6, 13.

Total No. of visits **96**

Dates of examination of principal parts—Cylinders **14-7-51.** Covers **24-7-51.** pistons **9-5-51.** Rods **-** Connecting rods **28-7-51.**

Crank shaft **4-6-51.** Flywheel shaft **-** Thrust shaft **4-6-51.** Intermediate shafts **20-11-51.** Tube shaft **-**

Screw shaft **20-10-51.** Propeller **13-11-51.** Stern tube **17-9-51.** Engine seatings **15-1-52.** Engine holding down bolts **15-1-52.**

Completion of fitting sea connections **26 - 1 - 52.** Completion of pumping arrangements **28 - 1 - 52** Engines tried under working conditions **6-2-52.**

Crank shaft, material **O. H. Steel** Identification mark **K-CK 190** Flywheel shaft, material, **-** Identification mark **-**

Thrust shaft, material **O. H. Steel** Identification mark **K-F 826** Intermediate shafts, material **O. H. Steel** Identification marks **No.1 K-F 951 K-F 977**

Tube shaft, material **-** Identification mark **-** Screw shaft, material **O. H. Steel** Identification mark **K-F 977**

Identification marks on air receivers **No. AR 213 LLOYD'S TEST W.T.P. 45Kg/cm2 W.P. 30 Kg/cm2 M.H. B 30-10-51.**

**No. AR 214 LLOYD'S TEST W.T.P. 45Kg/cm2 W.P. 30 Kg/cm2 M. H. B 30-10-51.**

Welded receivers, state Makers' Name **-**

Is the flash point of the oil to be used over 150°F **-**

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with **Yes**

Description of fire extinguishing apparatus fitted **Engine room: 1-steam smoother 5-portable extinguishers (9 liter) 1-150 liter foam extinguisher 5-70P sea water service & hose Boiler room: 1-steam smoother 2-portable extinguishers (9 liter) 2-70P sea water service & hose**

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 **M/V " NISSYO - MARU "**

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, approved plans and Secretary's letters.

The workmanship and materials are sound and good.

The machinery has been examined under full working condition under deck and comprehensive sea trials and found satisfactory.

In our opinion the machinery of this vessel is eligible to have a record of

**L.M.C. 2-52 T.S. (C.L.) 2-52 D.B.W.P. 12 Kg/cm2 2-52**

The amount of Entry Fee ... **£ 793;646**

Special ... **£ :** When applied for **19**

Donkey Boiler Fee... **£ 152;566** When received **19**

Travelling Expenses (if any) **£ TUES: 12 AUG 1952**

Committee's Minute

Assigned **+ LMC 2,52 Oil Eng. C.L. 2DB 17116**

*Shunji Hirohama*  
Engine Surveyor Lloyd's Register of Shipping.



Certificate (if required) to be sent to be sent to the space for Committee's Minute.