

# REPORT ON OIL ENGINE MACHINERY.

No. FE-3856

Received at London Office 10 SEP 1956

Date of writing Report 19... When handed in at Local Office AUG. 29. 1956 19... Port of K O B E

No. in Survey held at Tamano, Japan Date, First Survey 21st Oct., 1955 Last Survey 7th June 19 56.

Reg. Book. Number of Visits 26

on the ~~XXXX~~ <sup>Single</sup> Screw vessel M.V. "MIKAGESAN MARU" Tons <sup>Gross</sup> 7200.05 <sup>Net</sup> 4019.43

Built at Tamano, Japan By whom built Mitsui S.B. & Eng., Co., Ltd. Yard No. 609 When built 1956-6.

Engines made at Tamano, Japan By whom made Mitsui S.B. & Eng., Co., Ltd. Engine No. 607 When made 1956-6.

Donkey Boilers made at Tamano, Japan By whom made Mitsui S.B. & Eng., Co., Ltd. Boiler No. 397 When made 1956-6.

Brake Horse Power 11250 Owners Mitsui Steamship Co., Ltd. Port belonging to Tokyo

M.N. as per Rule 2250 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

Trade for which vessel is intended Ocean going

OIL ENGINES, &c. — Type of Engines MITSUI B & W DE 974 VTBF 160 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 55 kg/cm<sup>2</sup> Diameter of cylinders 740mm Length of stroke 1600mm No. of cylinders 9 No. of cranks 9

Mean Indicated Pressure 8.0 kg/cm<sup>2</sup> Span of bearings (i.e., distance between inner edges of bearings in way of a crank) 984.6mm Is there a bearing between each crank Yes Revolutions per minute 115

Flywheel dia. 1903mm Weight 2180kg Moment of inertia of flywheel (~~XXXX~~ Kg.cm<sup>2</sup>) 4,000,000 Means of ignition compression Kind of fuel used diesel oil.

Crank Shaft, <sup>Solid forged</sup> ~~XXXX~~ <sup>XXXX</sup> dia. of journals 535.78mm as per Rule 590mm as fitted 590mm Crank pin dia. 590mm Crank webs Mid. length breadth 1240mm Mid. length thickness 290mm Thickness parallel to axis 340mm Thickness around eye-hole 290mm

Flywheel Shaft, diameter as per Rule 444.731mm Intermediate Shafts, diameter as per Rule 450mm Thrust Shaft, diameter at collars as per Rule 520mm as fitted 489.20mm

Tube Shaft, diameter as per Rule 507.938mm as fitted 515mm Is the ~~XXXX~~ screw shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 23.241mm as fitted 27mm Thickness between bushes as per Rule 17.431mm as fitted 24.5mm 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 -

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 fitted at the after end of stern tube No If so, state type - Length of bearing in Stern Bush next to and supporting propeller 2,200mm

Propeller, dia. 5,900mm Pitch 5,018.7mm No. of blades 4 Material MnBC Blade Boss Cast Iron whether moveable moveable Total developed surface 134.527 sq. feet

Moment of inertia of propeller including entrained water ~~XXXX~~ Kg.cm<sup>2</sup> 379,900,000 Kind of damper, if fitted -

Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine Yes Means of lubrication forced Thickness of cylinder liners 52mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or 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. and how driven 3 Working F.W. -

S.W. - Spare F.W. - S.W. - 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. and capacity 2-20M3/hx40M. 150mm dia. Stroke 200mm Can one be overhauled while the other is at work No

Pumps connected to the Main Bilge Line { No. and capacity of each 1-Ballast pump, 1-G.S. pump, 1-Bilge pump, 2-Bilge Sanit. Pump  
How driven 180m3/hx20m, 180m3/hx20m, 20m3/hx30m, 20m3/hx 40m  
Elect. Motor Elect. Motor Elect. Motor Main Engine

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 capacity 1-180m3/h x 20m Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2-310 m3/h x 35m

Are two independent means arranged for circulating water through the Oil Cooler Yes Branch Bilge Suctions -

No. and size: In machinery spaces Fore S. 1-3" Aft S. 2-3 1/2" Centre 1-3 1/2", Coff. 1-3" In pump room 1-2" Deep PC 1-2" 1-2" PW 1-3" 1-3" Deep P 1-2"

In holds, &c. Hold. P-1-3 1/2" 1-3 1/2" 1-3 1/2" 1-2" 1-3 1/2" 1-2" 1-2" 1-3 1/2" Tank SC 1-2" 1-2" SW 1-3" 1-3" Coff. S 1-2"

Direct Bilge Suctions to the engine room bilges, No. and size 1-9" main cool. S.W. Pump; 1-5 1/2", Ballast well 1-3 1/2" Tunnel bilge Tunnel bilge hat 1-2"

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suction pipes 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 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 None How are they protected -

What pipes pass through the deep tanks None 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 Yes Is it fitted with a watertight door Yes worked from Upper deck

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 2 diameters L.P. 130mm stroke 120mm driven by Elect. Motor

Auxiliary Air Compressors, No. 2 No. of stages 2 diameters L.P. 115mm stroke 95mm driven by Hand.

Small Auxiliary Air Compressors, No. 1 No. of stages 2 diameters L.P. 95mm stroke 56mm driven by Hand.

What provision is made for first charging the air receivers Hand driven compressor.

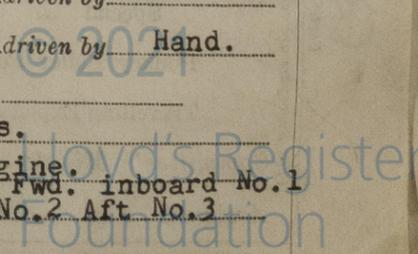
Scavenging Air Pumps or Blowers, No. 3-Super charger How driven Main Engine, Exhaust Gas.

Auxiliary Engines Have they been made under survey Yes Engine Nos. 3-Aux. Oil Engine. Port side inboard No. 1 Fwd. inboard No. 1 Outboard No. 2 Aft No. 3

Makers' name Mitsui Shipbuilding & Eng., Co., Ltd. Position of each in engine room Outboard No. 2 Aft No. 3

Report No. 011378-011385-0118

27/9/56



AIR RECEIVERS:—Have they been made under survey Yes State No. of report or certificate AR-31142

State full details of safety devices 2-10mm Fusible plug.

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 - Working pressure -

Starting Air Receivers, No 2 Total cubic capacity 13M3 x 2 Internal diameter 1,718mm Shell 25mm thickness End plate 31mm

Seamless, welded or riveted longitudinal joint Welded Material O.H.Steel Range of tensile strength Shell 48.1-52.3kg/mm2 Working pressure 25.2kg/cm2 Flange 44.0-44.1kg/mm2 25kg/cm2

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 Yes

PLANS. Are approved plans forwarded herewith for shafting 5-11-54 (Kobe) Receivers 28-12-54 (Kobe) Separate fuel tanks 28-12-54 (Kobe)

Donkey boilers 8-12-54 (Kobe) General pumping arrangements - Pumping arrangements in machinery space 3-12-54 (Kobe)

Oil fuel burning arrangements 4-2-55 (Kobe)

Have Torsional Vibration characteristics been approved Yes Date and particulars of approval 26/9/56 6-4-54

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes State if for "short voyages" only

State the principal additional spare gear supplied 4-Exhaust valves, 2-starting air valves, 9-fuel valves, 2-relief valves, 8 sets - piston ring, 1 set - piston cooling pipe, 1-cylinder liner, 1-cylinder cover, 10-indicator valve, 1-propeller blade, 7-propeller studs.

MITSUI SHIPBUILDING & ENGINEERING CO., LTD., TAMANO WORKS.

S. Tanaka, Senior Managing Director.

The foregoing is a correct description,

Dates of Survey while building: 1955: Oct. 21, 28, Sept. 8, 28, 30, Dec. 2, 6, 9, 23, 27, 29. 1956: Jan. 9, 13, 16, 18, 20, 23, 25, 26, 27, 31, Feb. 1, 3, 6, 8, 10, 13, 17, 18, 20, 21, 23, 24, 27, 28, 23, 25, 27, 30, Mar. 1, 2, 5, 6, 8, 9, 12, 13, 15, 16, 19, 20, 21, 23, 26, 27, 29, 30, Apr. 2, 3, 5, 6, 9, 10, 12, 16, 17, 23, 25, 27, 30, May 4, 7, 8, 10, 11, 14, 15, 17, 18, 21, 22, 25, 29, 31. 1956: March 5, 9, 13, 17, 22, 28, June, 1, 4, 7

Total No. of visits 92

Dates of examination of principal parts—Cylinders 26-3-56 Covers 27-3-56 Pistons 3-4-56 Rods 28-12-55 Connecting rods 17-2-56

Crank shaft 13-2-56 Flywheel shaft - Thrust shaft 13-2-56 Intermediate shafts 5, 6, 7-12-55 Tube shaft -

Screw shaft 6-3-56 Propeller 27-2-56 Stern tube 2-3-56 Engine seatings 17-5-56 Engine holding down bolts 17-5-56

Completion of fitting sea connections 13-3-56 Completion of pumping arrangements 28-5-56 Engines tried under working conditions 7-6-56

Crank shaft, material O.H.Steel Identification mark K-CKV519 Flywheel shaft, material - Identification mark Y7195, Y731

Thrust shaft, material O.H.Steel Identification mark K-F2090 Intermediate shafts, material O.H.Steel Identification marks Y7316AB, Y7316AC, Y7316AD, Y7316AE, Y7316AF, Y7316AG, Y7316AH, Y7316AI, Y7316AJ, Y7316AK, Y7316AL, Y7316AM, Y7316AN, Y7316AO, Y7316AP, Y7316AQ, Y7316AR, Y7316AS, Y7316AT, Y7316AU, Y7316AV, Y7316AW, Y7316AX, Y7316AY, Y7316AZ, Y7316BA, Y7316BB, Y7316BC, Y7316BD, Y7316BE, Y7316BF, Y7316BG, Y7316BH, Y7316BI, Y7316BJ, Y7316BK, Y7316BL, Y7316BM, Y7316BN, Y7316BO, Y7316BP, Y7316BQ, Y7316BR, Y7316BS, Y7316BT, Y7316BU, Y7316BV, Y7316BW, Y7316BX, Y7316BY, Y7316BZ, Y7316CA, Y7316CB, Y7316CC, Y7316CD, Y7316CE, Y7316CF, Y7316CG, Y7316CH, Y7316CI, Y7316CJ, Y7316CK, Y7316CL, Y7316CM, Y7316CN, Y7316CO, Y7316CP, Y7316CQ, Y7316CR, Y7316CS, Y7316CT, Y7316CU, Y7316CV, Y7316CW, Y7316CX, Y7316CY, Y7316CZ, Y7316DA, Y7316DB, Y7316DC, Y7316DD, Y7316DE, Y7316DF, Y7316DG, Y7316DH, Y7316DI, Y7316DJ, Y7316DK, Y7316DL, Y7316DM, Y7316DN, Y7316DO, Y7316DP, Y7316DQ, Y7316DR, Y7316DS, Y7316DT, 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Identification marks on air receivers No. AR 732 LLOYD'S TEST KOB W.T.P. 41kg/cm2 W.P. 25kg/cm2 RS LR 27-3-56 No. AR 733 LLOYD'S TEST KOB W.T.P. 41kg/cm2 W.P. 25kg/cm2 RS LR 27-3-56

Welded receivers, state Makers' Name Mitsui Shipbuilding & Engineering Co., Ltd., Tamano Works.

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

Full description of fire extinguishing apparatus fitted in machinery spaces 2-Hose connections (Port & Fore), 1-Emergency Fire Pump, 1-CO2 hose reel in B.R. Steam smothering pipe in Eng. & B. Room, Portable foam extinguisher \*

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo No If so, have the requirements of the Rules been complied with -

What is the special notation desired

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. "MOGAMISAN MARU" (Yard No. 2084) M.V. "HODAKASAN MARU"

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

The Machinery of this vessel has been constructed under Special Survey in accordance with the Rules approved plans and Secretary's letters.

The Material and workmanship are sound good.

The Machinery of this vessel has been examined under full working conditions during shop and comprehensive sea trial and found satisfactory.

In our opinion the machinery of this vessel is eligible to have a record of +LMC 6,56, TS(C) 6,56, D.B.S. 6,56 W.P. 7kgs/cm2.

Crank case explosion relief devices are fitted.

The amount of Entry Fee ... £ 939,000

Special ... £ : When applied for AUG. 21. 1956

Donkey Boiler Fee... £ : When received 19

Travelling Expenses (if any) £ See Pt. I

Committee's Minute TUESDAY 16 OCT 1956

Assigned +LMC 6.56

R.D. Sutherland & J. Hirohara 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.)