

# REPORT ON OIL ENGINE MACHINERY.

No. FE-3020

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Date of writing Report 19 When handed in at Local Office <sup>OCT. 27 1955</sup> 19 Port of Kobe

No. in Survey held at Tamano, Japan Date, First Survey 16-11-54 Last Survey 22-7- 1955.  
 Reg. Book. Number of Visits 85

~~Single~~ ~~Double~~ ~~Triple~~ ~~Quadruple~~ Screw vessel M.V. "HODAKASAN MARU" Tons {Gross 7218.16  
Net 4028.36

Built at Tamano, Japan By whom built Mitsui S.B. & Eng., Co., Ltd. Yard No. 593 When built July, 1955

Engines made at Tamano By whom made Mitsui S.B. & Eng., Co., Ltd. Engine No. 558 When made July, 1955

Donkey Boilers made at Tamano By whom made Mitsui S.B. & Eng., Co., Ltd. Boiler No. 384 When made July, 1955

Boiler No. 385

Brake Horse Power 11250 Owners Mitsui Sempaku K.K. Port belonging to Tokyo

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

Trade for which vessel is intended

**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> Ahead Firing Order in Cylinders 1-6-7-3-4-9-2-5-8 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 984.6mm Is there a bearing between each crank Yes Revolutions per minute 115

Flywheel dia 1903mm Weight 2180kgs Moment of inertia of flywheel ~~11,000,000~~ 11,000,000 Kg. cm.<sup>2</sup> Means of ignition compression Kind of fuel used Diesel oil

Crank Shaft, ~~as per Rule~~ dia. of journals 535.78mm as fitted 590mm Crank pin dia 590mm Crank webs Mid. length breadth 1240mm Thickness parallel to axis 340mm  
 as fitted 220mm Mid. length thickness 240mm shrunk Thickness around eyehole 265mm

Flywheel Shaft, diameter as per Rule 444.729mm as fitted 450mm Thrust Shaft, diameter at collars as fitted 489.20mm  
 as per Rule 520mm

Tube Shaft, diameter as per Rule 507.938mm as fitted 515mm Is the ~~axle~~ 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 or other appliance fitted at the after end of tube shaft No If so, state type -

Length of bearing in Stern Bush next to and supporting propeller 2200mm

Propeller, dia. 5900mm Pitch 5018.7mm No. of blades 4 Material Blade MnBC Boss cast iron whether moveable Movable Total developed surface 134.527 sq. feet

Moment of inertia of propeller ~~16,000,000~~ 379,900,000 Kg. cm.<sup>2</sup> 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 52mm 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. 2 Diameter 150mm Stroke 200mm Can one be overhauled while the other is at work No

Pumps connected to the Main Bilge Line { No. and size 1-Ballast pump 180m<sup>3</sup>/h x 20m, 1-G.S. pump, 180m<sup>3</sup>/h x 20m, 1-Bilge pump 20m<sup>3</sup>/h x 30m, 2-Bilge pump 20m<sup>3</sup>/h x 40m  
 How driven Electric motor Electric motor Electric Motor

Is the cooling water led to the bilges No If so, state what special arrangements are made Main engine with this water in addition to the ordinary bilge pumping arrangements -

Ballast Pumps, No. and size 1-180m<sup>3</sup>/h x 20m Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2-310m<sup>3</sup>/h x 35m

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both main bilge pumps and auxiliary pumps, No. and size: In machinery spaces: Fore P-1-3" Aft P-2-3 1/2" Aft Centre-1-3 1/2" Coff. 1-3" In pump room -

holds, &c. Hold P. 1-3 1/2" 1-3 1/2" 1-3 1/2" 1-2" 1-3 1/2" 1-2" 1-3 1/2" 1-2" 1-3 1/2" Deep No. 1 2 No. 1 2 Deep P. 1-2" 1-2" Tank P. 1-2" 1-2" 1-3" 1-3" 1-3" Tunnel 1-3 1/2"

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

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

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 pipes pass through the bunkers None How are they protected -

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

Auxiliary Air Compressors, No. 2 No. of stages 2 diameters L.P. 130mm stroke 120mm driven by Elec. motor

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

What provision is made for first charging the air receivers By hand compressor

Exhausting Air Pump, No. 3 diameter - stroke - driven by Exhaust gas turbine

Auxiliary Engines crank shafts, diameter as per Rule 158.77mm No. 3 (Eng. No. 559, 560, 561) Position Port side built seat on tank top  
 as fitted 170mm

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 AR-23054

Is each receiver, which can be isolated, fitted with a safety valve as per Rule 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 26 M<sup>3</sup> Internal diameter 1,718mm thickness Shell 25mm  
Seamless, welded or riveted longitudinal joint Welded Material O.H. Steel Range of tensile strength Flange 42.6-43.3kg/mm<sup>2</sup> Working pressure End plate 31mm  
Shell Working pressure Actual 25 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 Yes

PLANS. Are approved plans forwarded herewith for shafting 15-11-1954 (Kobe) Receivers 28-12-1954 (Kobe) Separate fuel tanks 28-12-1954 (Kobe)

Donkey boilers 8-12-1954 (Kobe) General pumping arrangements 6-11-54 (Kobe) Pumping arrangements in machinery space 3-12-54 (Kobe)

Oil fuel burning arrangements 4-12-1955 (Kobe)

Have Torsional Vibration characteristics been approved Yes Date of approval 6-4-55.

**SPARE GEAR.**

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

State the principal additional spare gear supplied 4-Exhaust valves, 2-starting air valves, 1/2 set and 2-Fuel valves for one engine, 8 sets - piston ring for one cylinder, 1 set - piston cooling pipe, 8 sets - oil pipes for one cylinder, 1 set - cylinder liner, 1 - cylinder cover, 10-Indicator valves, 1 set - Main bearing, 1 - Propeller blade, 8 - propeller studs.

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

*J. Tanaka*  
Senior Managing Director.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building  
During progress of work in shops: 1954: Nov. 16, 19, 26, 30, Dec. 3, 7, 9, 14, 17, 21, 24, 28  
1955: Jan. 11, 13, 21, 25, 29, Feb. 1, 5, 8, 11, 15, 22, 25 Mar. 1, 4, 8, 11, 15, 17, 19, 22, 23, 24, 25, 28  
Apr. 1, 6, 8, 9, 11, 12, 15, 16, 22, 26, 27, 28, 30 May, 2, 4, 6, 10, 13, 17, 18, 20, 21, 24, 27, 30, Jun. 3, 7, 8, 11, 14, 16, 18, 22, 25, 28 Jul. 1, 2, 4, 8, 12, 15  
During erection on board vessel: 1955: Apr. 12, 19, 28, Jun. 22, Jul. 12, 15, 22  
Total No. of visits 85

Dates of examination of principal parts—Cylinders 6-4-55 Covers 26-4-55 pistons 10-5-55 Rods 22-3-55 Connecting rods 18-3-55

Crank shaft 4-4-55 Flywheel shaft - Thrust shaft 4-4-55 Intermediate shafts - Tube shaft -

Screw shaft - Propeller - Stern tube - Engine seatings 22-6-55 Engine holding down bolts 22-6-55

Completion of fitting sea connections 19-4-55 Completion of pumping arrangements 12-7-55 Engines tried under working conditions 22-7-55

Crank shaft, material Identification mark K-CK 455 Flywheel shaft, material - Identification mark -

Thrust shaft, material Identification mark K-F 1810 Intermediate shafts, material - Identification marks -

Tube shaft, material Identification mark - Screw shaft, material - Identification mark -

Identification marks on air receivers No. AR 607 LLOYD'S TEST KOB W.T.P. 41kg/cm<sup>2</sup> W.P. 25 kg/cm<sup>2</sup> JN LR 27-4-55

No. AR 608 LLOYD'S TEST KOB W.T.P. 41kg/cm<sup>2</sup> W.P. 25 kg/cm<sup>2</sup> JN LR 27-4-55

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

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.

Description of fire extinguishing apparatus fitted Steam pipe and CO2 gas pipe from CO2 gas bottle room  
2-Horse connection valve (starb. & port side each 1) 1-Fire pump.

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. "HAGUROSAN 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 Rule, approved plans and Secretary's letters.

The workmanship and materials are sound and good.

The machinery was examined under working condition during shop trial and comprehensive sea trials and found satisfactory.

In our opinion this machinery is worthy to have a record of +LMC 7,55, TS(CL) 7,55 and D.B. W.P. 7kg/cm<sup>2</sup>.

The amount of Entry Fee ... £ 939,000 :

Special ... £ :

Donkey Boiler Fee... £ :

Travelling Expenses (if any) £ See A. 1 :

When applied for SEP. 12, 1955 19

When received 19

*B. J. Jones*  
Engineer Surveyor to Lloyd's Register of Shipping.



Lloyd's Register Foundation

Committee's Minute FRIDAY 25 NOV 1955

Assigned +LMC 7.55

DB 100 ll. Ch.

Certificate (if required) to be sent to  
The Surveyors are requested not to write on or below the space for Committee's Minutes.