

# REPORT ON OIL ENGINE MACHINERY.

No. 2121  
3-JUN1954

Received at London Office

of writing Report 19 When handed in at Local Office MAY 27. 1954 19 Port of Kobe

Survey held at Tamano, Japan Date, First Survey 12th June, 1953 Last Survey 27th March, 1954  
 Book. Number of Visits 91

Single  on the Table  Triple  Quadruple  Screw vessel m.v. "HAKONESAN MARU" Tons (Gross 6927.05 Net 3838.75)

at Tamano, Japan By whom built Mitsui Shipbuilding & Engineering Co., Ltd. Yard No. 580 When built Mar. 1954

ines made at Tamano, Japan By whom made Mitsui Shipbuilding & Engineering Co., Ltd. Engine No. 505 When made Mar. 1954

ey Boilers made at Tamano, Japan By whom made Mitsui Shipbuilding & Engineering Co., Ltd. Boiler No. 369 When made Mar. 1954

Horse Power { Maximum 11250 ✓ Service 9600 Owners Mitsui Steamship Co., Ltd. Port belonging to Tokyo

as per Rule 2250 ✓ Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

for which vessel is intended.

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

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

Indicated Pressure 8 kg/cm<sup>2</sup> ✓ Span of bearings (i.e., distance between inner edges of bearings in a crank) 984.6 mm ✓ Is there a bearing between each crank Yes Revolutions per minute { Maximum 115 ✓ Service 109

eel dia 1903 mm Weight 2180 kg. Moment of inertia of flywheel (~~xxxxxx~~ Kg.cm.<sup>2</sup>) 11,000,000 Means of ignition Compression Kind of fuel used Diesel

el dia 1903 mm Weight 2180 kg. " " " " balance wts. ( ~~xxxxxx~~ " " ) 123,000,000

Solid forged  Semi built  All built  dia. of journals as per Rule 535.78 mm Crank pin dia. 590 mm Crank webs { Mid. length breadth 1240 mm Thickness parallel to axis 340 mm as fitted 590 mm ✓ with 220 mm central hole ✓ Mid. length thickness 290 mm shrunk Thickness around eyehole 265 mm

eel Shaft, diameter as per Rule 444.729 mm Intermediate Shafts, diameter as per Rule 450 mm ✓ Thrust Shaft, diameter at collars as per Rule 489.20 mm as fitted 520 mm ✓ with 160 mm central hole ✓

Shaft, diameter as per Rule 507.938 mm Is the wide screw shaft fitted with a continuous liner { Yes ✓ as fitted 515 mm ✓

er Liners, thickness in way of bushes as per Rule 23.241 mm Thickness between bushes as per Rule 17.431 mm Is the after end of the liner made watertight in the liner boss Yes ✓ If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner —

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-  
 If two liners are fitted, is the shaft lapped or protected between the liners — Is an approved Oil Gland fitted at the after stern tube No ✓ If so, state type — Length of bearing in Stern Bush next to and supporting propeller 2300 mm ✓

ller, dia 5900 mm Pitch 5131 mm No. of blades 4 Material Blade: Mn Bronze whether moveable moveable Boss: Cast Iron Total developed surface 126.589 sq. feet

it of inertia of propeller including entrained water (~~xxxxxx~~ Kg.cm.<sup>2</sup>) 279,300,000 Kind of damper, if fitted —

d of reversing Engines Direct ✓ Is a governor or other arrangement fitted to prevent racing of the engine Yes ✓ Means of Forced Thickness of cylinder liners 52 mm Are the cylinders fitted with safety valves Yes ✓ Are the exhaust pipes and silencers water cooled Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned to the engine —

ooling Water Pumps, No. and how driven 3; electric motor ✓ Working F.W. 1 ✓

l ✓ Spare F.W. & S.W. 1 SW Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

umps worked from the Main Engines, No. and capacity 2; 20 m<sup>3</sup>/h ✓ Can one be overhauled while the other is at work No

connected to the Main Bilge Line { No. and capacity of each 1-ballast pump 180m<sup>3</sup>/h, 1-general service pump 180m<sup>3</sup>/h, 1-bilge pump 20m<sup>3</sup>/h (all driven by electric motor), 2-bilge sanitary pump 2x20 m<sup>3</sup>/h (driven by main engine) ✓ How driven —

ooling 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 —

ements —

umps, No. and capacity 1; 180 m<sup>3</sup>/h ✓ Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2; 310 m<sup>3</sup>/h ✓

o independent means arranged for circulating water through the Oil Cooler Yes ✓ Branch Bilge Suctions —

l size: — In machinery spaces 3 Fore P 1-3" Aft P 2-3" Aft S 1-3 1/2" Centre 1-3 1/2" In pump room —

ls, &c. { NO. P. 1-3 1/2" V. 1-3 1/2" V. 1-3 1/2" V. 1-2" V. 1-3 1/2" V. 1-3 1/2" DEEP. TANK PC. 1-2" V. 1-2" DEEP. TANK PW. 1-3" V. 1-3" COFF. 5-1-3" V. 1-2" TUNNEL WELL 1-3 1/2" V. 1-2" TUNNEL BILGE COFF. 1-2" ENGINE ROOM DRY TANK 1-2" ENGINE ROOM COFF. 1-3"

Bilge Suctions to the engine room bilges, No. and size 1-9" main cooling S.W. pump, 1-3 1/2" G.S. pump, 1-5 1/2" ballast pump ✓

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 ✓

Sea Connections fitted direct on the skin of the Ship Yes ✓ Are they fitted with valves or cocks Valves & cocks ✓ Are they fixed Below ✓

utly 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 ✓

y 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 ✓

ipes pass through the bunkers None How are they protected —

ipes pass through the deep tanks None Have they been tested as per Rule —

ipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times Yes ✓

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

wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork —

in Air Compressors, No. — No. of stages — diameters — stroke — driven by —

4 Auxiliary Air Compressors, No. 2 ✓ No. of stages 2 diameters H.P. 115mm stroke 120mm driven by Electric motor

2 Full Auxiliary Air Compressors, No. 1 ✓ No. of stages 2 diameters H.P. 1 1/2" stroke 3" driven by Electric motor

21 At provision is made for first charging the air receivers By hand compressor (1, 2 stage H.P. 95mm Stroke 95mm, driven by hand)

9 Ventilating Air Pumps or Blowers, No. Turbo blowers 3 ✓ How driven Main engine exhaust gas

36 Auxiliary Engines { Have they been made under survey Yes Engine Nos. 506, 507, 508 Makers name Mitsui Shipbuilding & Engineering Co., Ltd. Position of each in engine room Port side built seat on tank top

8/7/54  
7E  
Prof'd

**AIR RECEIVERS:**—Have they been made under survey... Yes ✓ State No. of report or certificate AR-19214, AR-  
 State full details of safety devices 1: 10 mm 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 25.2 m<sup>3</sup> ✓ Internal diameter 1720 mm ✓ thickness Shell 25 kg  
 Seamless, welded or riveted longitudinal joint Welded ✓ Material O.H. steel Range of tensile strength Shell 49.1-50.2 kg/mm<sup>2</sup> End plate 25 kg  
 Flange 41.4-43.1 kg/mm<sup>2</sup> ✓

**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 26th Nov., 1953 Kobe Receivers 1st Dec. 1953 Separate fuel tank  
 (If not, state date of approval) Kobe  
 Donkey boilers 16-12-53 Kobe General pumping arrangements — Pumping arrangements in machinery space 28-10-53  
 Oil fuel burning arrangements 23-12-53 Kobe  
 Have Torsional Vibration characteristics been approved Yes Date and particulars of approval 1st April, 1954

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied Yes State if for "short voyages" only No  
 State the principal additional spare gear supplied 3-Exhaust valves, 2-Starting air valves, 11-Fuel valves,  
 3-Relief valves, 8 sets-Piston ring for one cylinder, 1 set - Piston cooling pipe,  
 8 sets-Fuel pipes for one cylinder, 1-Cylinder liner, 1-cylinder cover, 10-Indicator valve,  
 1-Main bearing, 1-Propeller blade, 7-Propeller studs

mitsui SHIPBUILDING & ENGI-  
 NEERING CO., LTD., TAMANO WORKS.

The foregoing is a correct description, S. Tanaka  
 Senior Managing Director

Dates of Survey while building  
 During progress of work in shops - - 1953 Jun. 12, 23, 30, July 3, 8, 14, 17, 21, 24, 31, Aug. 5, 7, 11, 14, 18, 21, 25, 28, Sept. 1, 4,  
 11, 15, 18, 22, 29, Oct. 2, 7, 14, 16, 20, 22, 24, 30, Nov. 5, 7, 10, 13, 17, 20, 24, 27, 30, D  
 During erection on board vessel - - 3, 4, 8, 11, 15, 18, 22, 26, 28, 29. 1954 Jan. 8, 9, 12, 16, 19, 22, 23, 26, 29, Feb. 2, 5, 9  
 16, 19, 22, 23, 26, Mar. 2, 5, 8, 9, 12, 16, 19, 30.  
 Total No. of visits 91  
 1953 Dec. 25, 1954 Jan. 22, 26, Feb. 19, Mar. 12, 13, 19, 24, 26, 27.

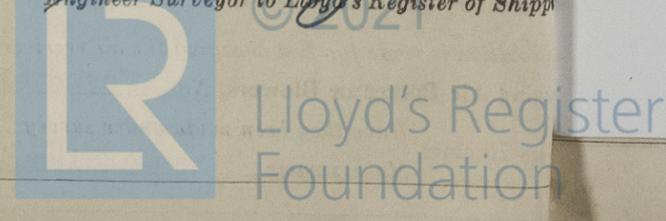
Dates of examination of principal parts—Cylinders 13-11-53 Covers 18-12-53 Pistons 8-12-53 Rods 8-12-53 Connecting rods 5-8  
 Crank shaft 24-10-53 Flywheel shaft — Thrust shaft 24-10-53 Intermediate shafts 7-10-54 Tube shaft —  
 Screw shaft 26-12-53 Propeller 12-1-54 Stern tube 28-12-53 Engine seatings 19-2-54 Engine holding down bolts 19-2-  
 Completion of fitting sea connections 22-1-54 Completion of pumping arrangements 12-3-54 Engines tried under working conditions 24-3-  
 Crank shaft, material F.S. & C.S. Identification mark K-CK 338 Flywheel shaft, material — Identification mark —  
 Thrust shaft, material O.H. steel Identification mark K-F 1442 Intermediate shafts, material O.H. steel Identification marks Y3660  
 Tube shaft, material — Identification mark — Screw shaft, material O.H. steel Identification mark K-F 1442  
 Identification marks on air receivers No. AR537 Lloyd's test KOB W.T.P. 41 kg/cm<sup>2</sup> W.P. 25kg/cm<sup>2</sup> MH LR 20-5-53  
 No. AR538 Lloyd's test KOB W.T.P. 41 kg/cm<sup>2</sup> W.P. 25kg/cm<sup>2</sup> JN LR 16-2-54

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 ✓  
 Full description of fire extinguishing apparatus fitted in machinery spaces Steam pipe & CO<sub>2</sub> gas pipe from CO<sub>2</sub> gas bottle room  
 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 ✓  
 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 No  
 Is this machinery duplicate of a previous case Yes If so, state name of vessel m.v. "HARUNASAN 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 and good.  
 The machinery of this vessel has been examined under full working condition during deck and  
 comprehensive sea trial and found satisfactory.  
 In our opinion, the machinery of this vessel is eligible to have a record of +LMC 3,54 T.  
 (CL) 3,54 and D.B.S. W.P. 7 kg/cm<sup>2</sup> 3,54.

The amount of Entry Fee ... ¥939,000:  
 Special ... £ : When applied for MAY 27 1954 19  
 Donkey Boiler Fee... £ : When received 19  
 Travelling Expenses (if any) See Rpt. 1. :

S. Tanaka  
 Engineer Surveyor to Lloyd's Register of Shipping



Committee's Minute FRIDAY 9 - JUL 1954  
 Assigned +LMC 3.54 Gil Eng.  
 DB 100 lb.  
 CL.

Certificate (if required) to be sent to  
 The Surveyors are requested not to write on or below the space for Committee's Minute.  
 TRST  
 25.6.54