

## REPORT ON OIL ENGINE MACHINERY.

No. 2170  
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KOBE

Date of writing Report 19 When handed in at Local Office JUL 26 1954 19 Port of  
No. in Survey held at Tamano & Osaka Date, First Survey 16th March, 1953 Last Survey 2nd June, 1954.  
Reg. Book. Number of Visits 47  
266975 on the <sup>Single</sup> ~~Twin~~ <sup>Triple</sup> ~~Quadruple~~ Screw vessel M.V. "INUISAN MARU"  
Built at Osaka By whom built Fujinagata Shipbuilding Co., Ltd. Yard No. S-31 When built 1954 6mo.  
Engines made at Tamano By whom made Mitsui S.B. & Eng. Co., Ltd. Engine No. 517 When made 1954 6mo.  
Donkey Boilers made at Kobe By whom made Mitsubishi Heavy Ind., Reorganized Ltd. Boiler No. 122 When made 1944 4mo.  
Brake Horse Power Maximum 7500 ✓ Owners Inui Steam Ship Co., Ltd. Port belonging to Kobe  
M.N. Power as per Rule 1500 ✓ Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
Trade for which vessel is intended Ocean Going

OIL ENGINES, &c. — Type of Engines B. & W. D.E. 674VTBF-160 2 or 4 stroke cycle 2 ✓ Single or double acting Single ✓  
Maximum pressure in cylinders 55kg/cm<sup>2</sup> ✓ Diameter of cylinders 740mm ✓ Length of stroke 1600mm ✓ No. of cylinders 6 ✓ No. of cranks 6  
Mean Indicated Pressure 8kg/cm<sup>2</sup> ✓ Ahead Firing Order in Cylinders 1-6-2-4-3-5 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 972.6mm ✓ Is there a bearing between each crank Yes Revolutions per minute Service 115 ✓  
Flywheel dia. 1903mm Weight 2198kg Moment of inertia of flywheel (lbs. in<sup>2</sup> or Kg. cm<sup>2</sup>) 11000000 Means of ignition Compression Kind of fuel used Diesel oil  
Crank Shaft, Solid forged dia. of journals as per Rule 515.98mm as fitted 550mm ✓ Crank pin dia. 550mm ✓ Crank webs Mid. length breadth 1020mm Thickness parallel to axis 335mm  
All built as fitted 550mm ✓ with 220mm central hole Mid. length thickness 280mm shrunk Thickness around eyehole 225.1mm  
Flywheel Shaft, diameter as per Rule — Intermediate Shafts, diameter as per Rule 394.64mm as fitted 420mm ✓ Thrust Shaft, diameter at collars as per Rule 500mm with 160mm dia. hole  
Tube Shaft, diameter as per Rule — Screw Shaft, diameter as per Rule 452.55mm as fitted 465mm ✓ Is the tube screw shaft fitted with a continuous liner Yes ✓  
Bronze Liners, thickness in way of bushes as per Rule 21.49mm as fitted 28mm Thickness between bushes as per Rule 21.49mm as fitted 27mm 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 Yes 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 1935mm ✓  
Propeller, dia. 5500mm ✓ Pitch 4, 380mm No. of blades 4 Material MnBr. whether moveable Yes Total developed surface 111.2 sq. feet  
Moment of inertia of propeller (lbs. in<sup>2</sup> or 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 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. 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. and capacity 1-24M<sup>3</sup>/h, 120M<sup>3</sup>/h, 120M<sup>3</sup>/h, 120M<sup>3</sup>/h, 120M<sup>3</sup>/h Can one be overhauled while the other is at work —  
Pumps connected to the Main Bilge Line No. and size 1-24M<sup>3</sup>/h, 1x100M<sup>3</sup>/h, 1x120M<sup>3</sup>/h ✓ How driven Main Eng. Motor, 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 capacity 1-70M<sup>3</sup>/h, 120M<sup>3</sup>/h, 120M<sup>3</sup>/h, 120M<sup>3</sup>/h, 120M<sup>3</sup>/h Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2-75 HP Ver. Screw type  
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 3x3" ✓ 2x3" ✓ 2x3" ✓ 2x3" ✓ In pump room —  
In holds, &c. No. 1 2x3" ✓ No. 2 2x3" ✓ No. 3 2x3" ✓ No. 4 2x3" ✓ No. 5 2x3" ✓  
Independent Power Pump Direct Suctions to the engine room bilges, No. and size 2 x 5" ✓ 1 @ 7" Bilge injection (Yes Kib. 28.9.54)  
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 Yes ✓ 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 — How are they protected —  
What pipes pass through the deep tanks None fitted ✓ 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 up. ✓  
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 HP-3", IP-9" stroke 6" driven by Dynamo eng.  
Auxiliary Air Compressors, No. 1 ✓ No. of stages 2 diameters HP-1 1/2", IP-4 1/2" stroke 3" driven by Motor  
Small Auxiliary Air Compressors, No. 1 ✓ No. of stages 2 diameters HP-1 1/2", IP-3 1/2" stroke 3 1/2" driven by Hand  
What provision is made for first charging the air receivers by hand pump  
Scavenging Air Pumps, No. Turbo Blower 2 sets ✓ diameters 151.12 mm No. 2 How driven by Exhaust gas.  
or Blowers as per Rule 151.12 mm No. 2 Position port in Engine room  
Auxiliary Engines crank shafts, diameter as fitted 170 mm Is a report sent herewith Yes

012165-02171-0158



AR 18652  
AR 565, AR 566

**AIR RECEIVERS:**—Have they been made under survey... Yes ✓ State No. of report or certificate...  
Is each receiver, which can be isolated, fitted with a safety valve as per Rule... Fusible plug fitted on header of each receiver...  
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... 18.64M3 Internal diameter... 1675mm ✓ thickness... 25mm ✓  
Seamless, welded or riveted longitudinal joint... riveted joint Material... boiler plate Range of tensile strength... 485kg/mm2 Working pressure... 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... No, to be used for windlass, winch, harbour pump and room heating and domestic.  
**PLANS.** Are approved plans forwarded herewith for shafting... 4-11-53 Receivers... 27-10-53 Separate fuel tanks... 10-1-54  
Donkey boilers... London App. 20-11-53 (If not, state date of approval) General pumping arrangements... 19-1-54 Pumping arrangements in machinery space... 8-12-53  
Oil fuel burning arrangements... 18-12-53  
Have Torsional Vibration characteristics been approved... Yes Date of approval... 24-5-54.

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied... Yes  
State the principal additional spare gear supplied... 1 - Cylinder cover complete. 1 - cylinder liner, 9- fuel valves complete, 1 - exhaust valves complete, 2 - starting valves complete, 2 - safety valves complete, 8set - piston rings, 1set - main bearing and thrust bearing brass with bolts and nuts, 5set - fuel pump plungers and pump hausing, 5cyl.- fuel pipe.

The foregoing is a correct description,  
*M. M. Briggs* Manufacturer.

Dates of Survey while building  
During progress of work in shops - 1953: Mar. 16, June 1, Oct. 7, 14, 20, 22, 26, 30, Nov. 5, 7, 13, 17, 20, 27 Dec. 4, 8, 11, 18, 29, 1954: Jan. 8, 16, 19, 22, 29, Feb. 2, 5, 11, 9, 19, March 3, 5, 12, 16, 19, 23, 26, 31  
During erection on board vessel - 1954: Apr. 10, 16, 20, 23 May 7, 17, 21, 29, 31 June 2  
Total No. of visits... 47  
Dates of examination of principal parts—Cylinders 19-1-54 Covers 5-2-54 Pistons 2-2-54 Rods 2-2-54 Connecting rods 1-6-53  
Crank shaft 16-3-53 Flywheel shaft - Thrust shaft 11-2-54 Intermediate shafts 19-3-54 Tube shaft -  
Screw shaft 12-3-54 Propeller 7-5-54 Stern tube 3-3-54 Engine seatings 10-4-54 Engine holding down bolts 10-4-54  
Completion of fitting sea connections 19-3-54 Completion of pumping arrangements 21-5-54 Engines tried under working conditions 29, 31-5-54  
Crank shaft, material FS 7 CS Identification mark K-CK315 SM IR Flywheel shaft, material - Identification mark 28466 1/3  
Thrust shaft, material O.H. Steel Identification mark K-F1552 MS LR Intermediate shafts, material O.H. Steel Identification marks IS Y1890 1/3  
Tube shaft, material - Identification mark - Screw shaft, material O.H. Steel Identification mark IS Y1864 1/3  
Identification marks on air receivers AR 565, AR 566 W.T.P. 39kgs/cm2, W.P. 25kg/cm2 YK 30-3-54 LR

Welded receivers, state Makers' Name...  
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 KIDDIE TYPE CO2 fire ext, system, 2-30 litre sand box 10-9.5 litre portable roaming type fire ext.  
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, 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 materials and workmanships are sound, good and free from defect.  
The machinery has been examined under working condition during shop and comprehensive sea trials and found satisfactory.  
In our opinion the machinery of this vessel is eligible to have a record of +LMC 6,54, +DB 6,54 (O.NB (Ext.gas) made 44 and fitted 54 and CL 6,54. DB(WT) 142 LBS made 44 fitted 54 DB(exhaust) 142 LBS.

(Plan of arrangement of engine room is enclosed herewith Dr. No. 28907-8)  
The amount of Entry Fee ... £ 810.000  
Special ... £ : When applied for 26. 1954 19  
Donkey Boiler Fee... £ 35.950 When received 19  
Travelling Expenses (if any) (also see Rpt. 1)  
Committee's Minute TUESDAY 14 SEP 1954  
Assigned +LMC 6.54 (with Torsional End!)  
DB(WT) 142 lb. made 44 fitted 54.  
DB(Ex. Gas) 142 lb. CL.

*Stewart H. Rogers*  
Engineer Surveyor to Lloyd's Register of Shipping.  
Lloyd's Register Foundation