

## REPORT ON OIL ENGINE MACHINERY.

No. 527

Received at London Office

14 JAN 1951

Date of writing Report 10th October 1951 When handed in at Local Office 19 Port of KOBE  
No. in Survey held at Tamano, Japan Date, First Survey 8th May, 1950 Last Survey 26th September 1951  
Reg. Book. Number of Visits 82  
Single on the Twin Triple Quadruple Screw vessel Motor Ship "AKAGISAN MARU"  
Built at Tamano, Japan By whom built Mitsui Shipbuilding & Engineering Co., Ltd. Yard No. 563 When built 9-1951  
Engines made at Tamano, Japan By whom made Mitsui Shipbuilding & Engineering Co., Ltd. Engine No. 323 When made 9, 1951  
Donkey Boilers made at Tamano, Japan By whom made Mitsui Shipbuilding & Engineering Co., Ltd. Boiler No. 341 When made 9, 1951  
Brake Horse Power 8,000 Owners Mitsui Senpaku K. K. Port belonging to Tokyo  
M.N. Power as per Rule 1430 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes  
Trade for which vessel is intended 1438 Ocean going

**OIL ENGINES, &c.** — Type of Engines B & W 974 VTF 160 2 or 4 stroke cycle 2 Single or double acting Single  
Maximum pressure in cylinders 49 kg/cm<sup>2</sup> Diameter of cylinders 294 mm Length of stroke 160 mm No. of cylinders 9 No. of cranks 9  
Mean Indicated Pressure 6.5 kg/cm<sup>2</sup> Ahead Firing Order in Cylinders 1-8-3-6-5-4-7-2-9 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 972.6 mm Is there a bearing between each crank yes Revolutions per minute 110.5  
Flywheel dia 190.3 mm Weight 2198 kgs Moment of inertia of flywheel (lb-in<sup>2</sup> or Kg. cm<sup>2</sup>) 1100000 Means of ignition Compression Kind of fuel used Diesel oil  
**Crank Shaft,** Solid forged dia. of journals as per Rule 507.58 mm Crank pin dia 550 mm Crank webs Mid. length breadth 1020 mm Thickness parallel to axis 335 mm  
Semi built as fitted 550 mm Mid. length thickness 280 mm Thickness around eyehole 225 mm  
All built  
**Flywheel Shaft,** diameter as per Rule Intermediate Shaft, diameter as per Rule 426.618 mm Thrust Shaft, diameter at collars as fitted 500 mm  
as fitted Tube Shaft, diameter as per Rule 466.896 mm Is the {tube} shaft fitted with a continuous liner {yes  
as fitted 475 mm {screw} shaft fitted with a continuous liner {yes  
**Bronze Liners,** thickness in way of bushes as per Rule 21.934 mm Thickness between bushes as per Rule 16.451 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 —  
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 — If so, state type — Length of bearing in Stern Bush next to and supporting propeller 2000 mm  
**Propeller,** dia. 5800 mm Pitch 4669.5 mm No. of blades 4 Material Blade MnBC Base C.I. whether moveable yes Total developed surface 131.425 sq. feet  
Moment of inertia of propeller (lb-in<sup>2</sup> or Kg. cm<sup>2</sup>) 25760000 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 52 mm Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water-cooled or lagged with non-conducting material yes 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 = 1 FW, 1 SW + 1 Star Forb. 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 160 mm Stroke 200 mm Can one be overhauled while the other is at work NO  
**Pumps** connected to the Main Bilge Line { No. and size 1. Ballast pump 350 Thour, 1. General service pump 120 Thour, 2. Bilge & sanitary pump 20 Thour  
How driven Electric motor Electric 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 size 1-350 Thour **Power Driven Lubricating Oil Pumps,** including spare pump, No. and size 2, 350 Thour  
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 2-3 1/2" (P), 2-3 1/2" (S), 1-3 1/2" (Bilge hat), 1-2" (Dry tank), 1-3" (Coff) In pump room —

In holds, &c. Hold P. 1-3 1/2", 1-3 1/2", 1-3 1/2", 1-3 1/2" DEEPTANK P. 1-2" R.W. 1-3" S.W. 1-3" P.W. 1-3" S.W. 1-3" DEEPTANK P. 1-3" FOREPEAK 1-2" SHAFT TUNNEL 1-3 1/2"  
S. 1-3 1/2", 1-3 1/2", 1-3 1/2", 1-3 1/2" S. 1-2" R.C. 1-2" S.C. 1-2" P.C. 1-2" R.C. 1-3" Coff S. 1-3" Coff  
**Independent Power Pump Direct Suctions** to the engine room bilges, No. and size 1-5 1/2" (Ballast pump), 1-3 1/2" (General service pump), 1-240 mm Cooling water pump.

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 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 above

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 yes Is it fitted with a watertight door yes worked from 2nd D.K.

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 HP 115 mm LP 130 mm stroke 120 mm driven by Electric motor

**Small Auxiliary Air Compressors,** No. 1 No. of stages 2 diameters HP 1 1/2" LP 4 1/4" stroke 3" driven by Electric motor

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

**Scavenging Air Pumps,** No. 2, Roots Blowers diameter 820 mm Length stroke 2200 mm driven by Main engine  
as per Rule 152.20 mm No. 3  
**Auxiliary Engines** crank shafts, diameter as fitted 170 mm Position All in ports side 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-3821  
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 — Working pressure —  
**Starting Air Receivers,** No. 2 ✓ Total cubic capacity 13 M<sup>3</sup> x 2 Internal diameter 1720 mm thickness 24 mm  
Seamless, welded or riveted longitudinal joint Riveted ✓ Material O.H. steel Range of tensile strength 28.2-32.9 T<sub>0</sub> Working pressure —  
**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 1-5-51 Receivers 29-3-51 Separate fuel tanks 17-7-51  
(If not, state date of approval)  
Donkey boilers 23-5-51 General pumping arrangements 12-5-51 Pumping arrangements in machinery space 12-5-51  
Oil fuel burning arrangements 18-5-51  
Have Torsional Vibration characteristics been approved yes ✓ Date of approval 24-8-51

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied yes ✓  
State the principal additional spare gear supplied 8 Exhaust valves, 16 fuel oil valves, 1 starting air valve, 2 safety valves,  
8 indicator valves, 8 fuel needle valves, 8 sets piston rings, 2 telescopic cooling pipes, 1 blower chain complete,  
2 sets bolts & nuts for crosshead bearings, 1 cylinder jacket, 9 exhaust valve spindles, 1 set main bearings,  
1 set thrust bearings.

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

The foregoing is a correct description,

Manufacturer.

Senior Managing Director.

Dates of Survey while building  
During progress of work in shops — 1950-MAY. 8 AUG. 28 SEP. 4. 8. 18. OCT. 7. 8. 19. 23. 27. 30. NOV. 2. 7. 11. 14. 17. 21. 24. 28. DEC. 7. 8. 13. 20. 23. 29.  
1951-JAN. 16. 27. FEB. 3. 9. 12. 15. 20. 26. MAR. 6. 9. 13. 15. 19. 23. 30. APR. 3. 6. 14. 24. 27. MAY. 2. 5. 7. 14. 18. 22. 25.  
JUN. 1. 4. 9. 12. 13. 15. 19. 22. 27. JUL. 3. 4. 10. 17. 20. 23. 24. AUG. 2. 7. 11. 14. 22. 25. 31. SEP. 6. 8. 26.  
During erection on board vessel — 1951-JUL. 27 AUG. 24 SEP. 10. 23.  
Total No. of visits 82  
Dates of examination of principal parts—Cylinders 14-4-51 Covers 6-4-51 pistons 25-5-51 Rods 25-5-51 Connecting rods 22-5-51  
Crank shaft 30-3-51 Flywheel shaft — Thrust shaft 30-3-51 Intermediate shafts 23-7-51 Tube shaft —  
Screw shaft 13-6-51 Propeller 8-9-51 Stern tube 27-6-51 Engine seatings 25-8-51 Engine holding down bolts 25-8-21  
Completion of fitting sea connections 4-7-51 Completion of pumping arrangements 23-9-51 Engines tried under working conditions 23-9-51  
Crank shaft, material O.H. steel (F.S.) & Elect. F.S. (C.S.) Identification mark K-CK175 H.I.R. Flywheel shaft, material, — Identification mark —  
Thrust shaft, material O.H. steel Identification mark K-F772 H.I.R. Intermediate shafts, material O.H. steel Identification marks Y1671 A, B, C, D, E  
Tube shaft, material — Identification mark — Screw shaft, material O.H. steel Identification mark K-F844 M.S.R.  
Identification marks on air receivers LLOYD'S NO. AR182 W.P. 25 kg/cm<sup>2</sup> W.T.P. 39.1 kg/cm<sup>2</sup> mid R 20-7-51.  
LLOYD'S NO. AR183 W.P. 25 kg/cm<sup>2</sup> W.T.P. 39.1 kg/cm<sup>2</sup> mid R 20-7-51.

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 CO<sub>2</sub> gas piping in each hold & engine room from CO<sub>2</sub> bottle room, placed in upper Tween Deck, Steam piping in engine

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. "GERD MAERSK"

**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 materials and workmanship 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 + L.M.C. 9-51, T.S. (C.L.) 9-51, D.B. 9-51 W.P. 7 kg/cm<sup>2</sup>.

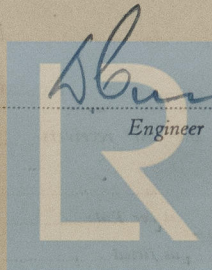
The amount of Entry Fee ... £ 202.00  
Special ... £ : :  
Donkey Boiler Fee... £ : :  
Travelling Expenses (if any) £ : :  
When applied for 19  
When received 19

Committee's Minute

Assigned

+ LMC 9.51 Oil Eng  
C.L. DB 1001B.

FRI. 18 APR 1952



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