

## REPORT ON OIL ENGINE MACHINERY.

No. 570

Received at London Office 9 - AUG 1956

Date of writing Report 19 When handed in at Local Office 19 Port of Shimonoseki

No. in Survey held at Nagasaki, Japan Date, First Survey 30-6-55 Last Survey 5-6-1956  
Reg. Book. 36405 on the Single Screw vessel M.T. "KOSOH MARU" carrying vegetable oil in deep tanks in way of tunnel Number of Visits 143 Gross 9204.74 Tons Net 5349.95

Built at Nagasaki, Japan By whom built Mitsubishi Zosen K.K. Yard No. 1465 When built 6-1956  
Engines made at Nagasaki, Japan By whom made Mitsubishi Zosen K.K. Engine No. 278 When made 2-1956  
Donkey Boilers made at Osaka, Japan By whom made Nisano Iron Works Co., Ltd. Boiler No. H515 When made 2-1956  
Brake Horse Power { Maximum 18500 Owners Daido Kaikan K.K. Port belonging to Kobe  
Service 7225  
M.N. as per Rule 1700 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

Trade for which vessel is intended International, Ocean going

OIL ENGINES, &c. — Type of Engines Mitsubishi 6 UEC 75/150 2 or 4 stroke cycle 2 Single or double acting Single  
Maximum pressure in cylinders 58 kg/cm<sup>2</sup> Diameter of cylinders 750 mm Length of stroke 1500 mm No. of cylinders 6 No. of cranks 6  
Mean Indicated Pressure 8.76 kg/cm<sup>2</sup> Span of bearings (i.e., distance between inner edges of bearings in way of a crank) 1020 mm Is there a bearing between each crank Yes Revolutions per minute { Maximum 122  
Service 115.6

Flywheel dia. 2595 mm Weight 9500 kg Moment of inertia of flywheel (lbs. in<sup>2</sup> or Kg. cm<sup>2</sup>) 4.09 x 10<sup>8</sup> Means of ignition Compression Kind of fuel used Heavy oil  
" " " " balance wts. ( " " " " ) —

Crank Shaft, { Solid forged  
Semi built  
All built } dia. of journals as per Rule As approved as fitted 558 mm Crank pin dia. 558 mm Crank webs Mid. length breadth 890 mm Thickness parallel to axis 350 mm  
Mid. length thickness 350 mm shrunk Thickness around eyehole 242.5 mm  
Crank pin and flywheel shaft, diameter as per Rule As approved as fitted 560 mm Intermediate Shafts, diameter as per Rule As approved as fitted 410 mm Thrust Shaft, diameter at collars as per Rule As approved as fitted —

Tube Shaft, diameter as per Rule As approved as fitted — Screw Shaft, diameter as per Rule As approved as fitted 470 mm Is the { tube screw } shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule As approved as fitted 2.6 mm Thickness between bushes as per Rule As approved as fitted 20 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 fitted at the after end of stern tube No If so, state type — Length of bearing in Stern Bush next to and supporting propeller 1880 mm  
Propeller, dia. 5200 mm Pitch 4700 mm No. of blades 4 Material Brass whether moveable Moveable Total developed surface 8.906 sq. feet  
Moment of inertia of propeller including entrained water (lbs. in<sup>2</sup> or Kg. cm<sup>2</sup>) 174525 Kind of damper, if fitted none fitted

Method of reversing Engines Self Is a governor or other arrangement fitted to prevent racing of the engine Yes Means of lubrication Forced Thickness of cylinder liners 4.5 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled Yes  
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 Electric motors Working F.W. Jacket Piston 1  
Spare F.W. 1 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 none Can one be overhauled while the other is at work —  
Pumps connected to the Main Bilge Line { No. and capacity of each 1 at 100/200 Bilge ballast pump 1 at 95/150 Fine G.S. pump 1 at 30 Bilge pump in t/b  
How driven Electric motor Electric motor Electric motor  
Is the cooling water led to the bilges Yes If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements —

Bilge Pumps, No. and capacity 2 at 100/200 and 1 at 95/150 Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2 at 50 t/b

Are two independent means arranged for circulating water through the Oil Cooler Yes Branch Bilge Suctions  
and size: — In machinery spaces 5 ft. 1 x 90 1 x 90 1 x 50 tunnel 1 x 90 in mm. In pump room —  
P. 1 x 80 1 x 80 1 x 80 1 x 50 1 x 50 1 x 50 1 x 50 1 x 80 1 x 80 2 x 80 1 x 80  
S. 1 x 80 1 x 80 1 x 80 1 x 50 1 x 50 1 x 50 1 x 50 1 x 80 1 x 80 1 x 80 1 x 80  
holds, &c. No. 1 hold, No. 2 hold, No. 3 hold, Coff. 1/2nd, Coff. 2/2nd, Coff. 3/2nd, Coff. 4/2nd, No. 4 hold, No. 5 hold, No. 6 hold, No. 7 hold, No. 8 hold, No. 9 hold, No. 10 hold, No. 11 hold, No. 12 hold, No. 13 hold, No. 14 hold, No. 15 hold, No. 16 hold, No. 17 hold, No. 18 hold, No. 19 hold, No. 20 hold, No. 21 hold, No. 22 hold, No. 23 hold, No. 24 hold, No. 25 hold, No. 26 hold, No. 27 hold, No. 28 hold, No. 29 hold, No. 30 hold, No. 31 hold, No. 32 hold, No. 33 hold, No. 34 hold, No. 35 hold, No. 36 hold, No. 37 hold, No. 38 hold, No. 39 hold, No. 40 hold, No. 41 hold, No. 42 hold, No. 43 hold, No. 44 hold, No. 45 hold, No. 46 hold, No. 47 hold, No. 48 hold, No. 49 hold, No. 50 hold, No. 51 hold, No. 52 hold, No. 53 hold, No. 54 hold, No. 55 hold, No. 56 hold, No. 57 hold, No. 58 hold, No. 59 hold, No. 60 hold, No. 61 hold, No. 62 hold, No. 63 hold, No. 64 hold, No. 65 hold, No. 66 hold, No. 67 hold, No. 68 hold, No. 69 hold, No. 70 hold, No. 71 hold, No. 72 hold, No. 73 hold, No. 74 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AIR RECEIVERS:—Have they been made under survey. Yes State No. of report or certificate. M-2322 Nag It. 5b.

State full details of safety devices. 1-50mm dia. single spring safety valve fitted to 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. 20 m<sup>3</sup> Internal diameter. 1800 mm thickness. 31 mm  
Seamless, welded or riveted longitudinal joint. Welded Material. Boiler steel Range of tensile strength. 51.3-52.2 Working pressure. 30 kg/cm<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. 28-12-55, 8-2-56 Receivers. 8-1-56 Separate fuel tanks. 8-2-56  
(If not, state date of approval) 25-11-54 General pumping arrangements. 4-12-55 Pumping arrangements in machinery space. 7-4-56

Donkey boilers. 25-11-54 Oil fuel burning arrangements. 25-2-56  
Have Torsional Vibration characteristics been approved. Yes Date and particulars of approval. 16-3-56 for a service speed of 122 r.p.m.

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. One piston crown, One cylinder liner, One cylinder cover.

The particulars of the installation as fitted are as approved for Torsional Vibration Characteristics  
The foregoing is a correct description, L Koga Manufacturer MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

VERTICAL  
Made at. \*  
Manufacture  
Total Heating  
No. and De  
Tested by hy  
Area of fire  
Area of each  
State whether  
or woodwork  
Shell plates:  
Are the shell  
Have all the  
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Dates of Survey while building  
During progress of work in shops. —  
During erection on board vessel. —  
Total No. of visits. 143

Dates of examination of principal parts—Cylinders. 9-3-56 Covers. 9-3-56 Pistons. 27-3-56 Rods. 27-3-56 Connecting rods. 8-3-56  
Crank shaft. 8-3-56 Flywheel shaft. and Thrust shaft. 9-3-56 Intermediate shafts. 17.19.27-3-56 Tube shaft. —

Screw shaft. 20-3-56 Propeller. 22-3-56 Stern tube. 20-3-56 Engine seatings. 14-5-56 Engine holding down bolts. 14-5-56  
Completion of fitting sea connections. 26-3-56 Completion of pumping arrangements. 19-5-56 Engines tried under working conditions. 31-5-56

Crank shaft, material. Carbon steel forging Identification mark. LLOYD'S NAG No. 857 F Flywheel shaft, material. and Identification mark. LLOYD'S NAG No. 12  
Thrust shaft, material. Carbon steel forging Identification mark. LLOYD'S NAG No. 528 AM Intermediate shafts, material. Carbon steel forging Identification marks. 278 F.B.E. MO. 12.3

Tube shaft, material. — Identification mark. — Screw shaft, material. Carbon steel forging Identification mark. LLOYD'S NAG No. 779  
Identification marks on air receivers. 68 No. 1225 LLOYD'S TEST NAG 48.5 KG W.P. 30 KG AM 1.3.56  
69 No. 1226 LLOYD'S TEST NAG 48.5 KG W.P. 30 KG AM 1.3.56

Welded receivers, state Makers' Name. Nagasaki Works, Mitsubishi Zosen K.K., Nagasaki  
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. Hydrant, 4 at 70 mm, 2 at 40 mm, with 3 hose reels & 3 nozzles (2 spring) 12 at 94.52 in. way of 1 1/2 inch hose 2 at 1454, in way of D.B. KIDDE CO<sub>2</sub> system 89 cylinders at 80.164 28 cylinders at 26.5

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  
What is the special notation desired. None

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 Installation of this ship has been made under special survey in accordance with the requirements of the Rules, the approved plans and the Secretary's letters.

The materials and workmanship are good.  
The main engine was tested under full power working conditions in the shop and subsequently during sea trials and found satisfactory. The explosion relief devices have been fitted to the crankcase of main and auxiliary heavy oil engines. An exhaust gas heated economiser has been fitted to the donkey boiler. It is submitted that the Machinery of this ship is eligible to have the class notation of + LMC in the Register Book, with the notation of db 100 lb and the records of Machinery Surveys:— Engine N 6/56, Boilers nd 6/56 and Tail shaft CL 6/56.

The amount of Entry Fee ... ¥ 855,000  
Special ... £  
Donkey Boiler Fee... £ See Rpt 1.  
Travelling Expenses (if any) £

When applied for. JUL 26 1956  
When received. 19

Committee's Minute FRIDAY 14 SEP 1956  
Assigned + LMC 6.56

Engineer Surveyor to Lloyd's Register of Shipping  
Peter Munson

Lloyd's Register Foundation