

REPORT ON OIL ENGINE MACHINERY

No. 5932

14 DEC 1936

Received at London Office

Date of writing Report 19th Nov 1936 When handed in at Local Office 19/11/36 Port of

No. in Survey held at YOKOHAMA

Date, First Survey 30th Sept, 1935 Last Survey 5th Nov 1936

Reg. Book.

Number of Visits 94

on the ^{Single} ~~Twin~~ ^{Triple} ~~Quadruple~~ Screw vessel M.V. "HOYO MARU"Tons Gross 8692
Net 6042

Built at Yokohama By whom built Mitsubishi Jukogyo Kaisha, Yokohama Dock Yard No. 250 When built 1936
 Engines made at Yokohama By whom made Mitsubishi J.K.K. Yokohama Dock Engine No. D4606 When made 1936
 Donkey Boilers made at Yokohama By whom made Mitsubishi J.K.K. Yokohama Dock Boiler No. 250 When made 1936
 Brake Horse Power 4500 Owners Nippon Tanker Kaisha Port belonging to Tokyo
 Nom. Horse Power as per Rule 1163 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
 Trade for which vessel is intended Carrying Petroleum in bulk 735/16 43 5/16

OIL ENGINES, &c.—Type of Engines Yokohama Dock M.A.N 2 or 4 stroke cycle 2 Single or double acting double
 Maximum pressure in cylinders 45 kg/cm² Diameter of cylinders 600 mm Length of stroke 1100 mm No. of cylinders 6 No. of cranks 6
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 885 mm Is there a bearing between each crank yes
 Revolutions per minute 130 Flywheel dia. 2100 mm Weight 3400 kg Means of ignition Solid Kind of fuel used
Crank Shaft, dia. of journals as per Rule as fitted 420 mm Crank pin dia. 420 mm Crank Webs Mid. length breadth 560 mm Mid. length thickness 235 mm Thickness parallel to axis shrunk Thickness around eye hole
Flywheel Shaft, diameter as per Rule as fitted 420 mm **Intermediate Shafts**, diameter as per Rule as fitted 355 mm **Thrust Shaft**, diameter at collars as per Rule as fitted 372 mm
Tube Shaft, diameter as per Rule as fitted **Screw Shaft**, diameter as per Rule as fitted 406 mm Is the ^{tube} screw shaft fitted with a continuous liner yes
Bronze Liners, thickness in way of bushes as per Rule as fitted 25.425.5 mm Thickness between bushes as per rule as fitted 18 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 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 the tube
 shaft 460 If so, state type Length of Bearing in Stern Bush next to and supporting propeller 1870 mm
Propeller, dia. 476.6 mm Pitch 3439.2 mm No. of blades 4 Material M. Bronze whether Moveable yes Total Developed Surface 6.612 m² sq. feet
Method of reversing Engines Direct Compression Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication
 Forced Thickness of cylinder liners 40 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. 2 of M.E. 1 Steam driven 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 100 mm Stroke 210 mm Can one be overhauled while the other is at work yes
Pumps connected to the Main Bilge Line No. and Size 2 of M.E. 20 T/H, 1-160 T/hr (Ballast pump), 1-75 T/hr. General Service, How driven Main Engines, Steam driven, Steam driven
Ballast Pumps, No. and size One 160 T/hr. Lubricating Oil Pumps, including Spare Pump, No. and size 1-200 T/H.M.E., 1-240 X 220 X 260
 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 1-90 mm aft, 1-200 mm aft center, 2-90 mm P.S. fore, 1-140 mm P.S. fore, 1-150 mm P.S. fore In Pump Room 1-75 mm
 In Holds, &c. aft co. to F.O. transfer pump 2-50 mm P.S., fore hold 2-75 mm P.S., fore peak 2-75 mm P.S., fore cofferdam 1-75 mm dia.
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-200 mm, 1-150 mm, 1-140 mm
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces
 led from easily accessible mud-bores, 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 Rod
 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 After cofferdam bilge suction How are they protected Oil bunker
 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 Is it fitted with a watertight door worked from
 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. One No. of stages 2 Diameters 150 & 75 mm Stroke 180 mm Driven by steam
Small Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by
Scavenging Air Pumps, No. One Diameter 1380 mm Stroke 850 mm Driven by main engine

Auxiliary Engines crank shafts, diameter as per Rule as fitted

AIR RECEIVERS:—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

High Pressure Air Receivers, No. Cubic capacity of each Internal diameter thickness

Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules Actual

Starting Air Receivers, No. Two Total cubic capacity 20,000 litres Internal diameter 1800 mm thickness 30 mm

Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength 44-55 kg/cm² Working pressure by Rules Actual

IS A DONKEY BOILER FITTED? Yes. Two If so, is a report now forwarded? Yes
Is the donkey boiler intended to be used for domestic purposes only all auxiliary machinery steam driven
PLANS. Are approved plans forwarded herewith for Shafting Kole 18/10/35, 14/11/35 Receivers Kole 27/3/36 Separate Tanks Kole 21/1, 12/2, 23/6/36
(If not, state date of approval)
Donkey Boilers See April 24th 1936 General Pumping Arrangements Kole 10/2/35, 4/5/36 Oil Fuel Burning Arrangements Kole 10/2/35, 6/7/36

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes
State the principal additional spare gear supplied List attached

The foregoing is a correct description,

M. Hottel

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 30/9/35 to 31/10/36 = 82 Visits
During erection on board vessel - - 25/9 - 5/11/36 = 12 Visits
Total No. of visits 94 Visits

Dates of Examination of principal parts - Cylinders 26, 28, 29/1/36 Covers 10, 11, 12, 13, 15/1/36 Pistons 14, 19, 22/5/36 Rods 14, 18, 22/5/36 Connecting rods 24-7-36
Crank shaft 1-8-36 Flywheel shaft ✓ Thrust shaft 1-8-36 Intermediate shafts 1-8-36 Tube shaft ✓
Screw shaft 19-8-36 Propeller 19-8-36 Stern tube 19-6-36 Engine seatings 4-8-36 Engines holding down bolts 5-10-36 etc.
Completion of fitting sea connections 4-8-36 Completion of pumping arrangements 21-10-36 Engines tried under working conditions 24-10-36
Crank shaft, Material Steel (forged) Identification Mark LR 528755 9-6-36 Flywheel shaft, Material ✓ Identification Mark LR 1305 T.K. 9-3-36
Thrust shaft, Material Steel Identification Mark LR 1306 T.K. 9-3-36 Intermediate shafts, Material F.S. Identification Marks LR 1305A T.K. 9-3-36
Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material F.S. Identification Mark LR 1347 H.D.B. 10-4-36
Identification Mark LR 1348 H.D.B. 10-4-36

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
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo ✓ If so, have the requirements of the Rules been complied with ✓
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 ✓ If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been built under Special Survey in accordance with the Rules & Approved Plans. Materials & Workmanship good.

The machinery has been securely fitted onboard under Special Survey and tried under full working conditions with satisfactory results.

The machinery of this vessel is eligible in my opinion to be classed in the Register Book LR HMC 11-36

The amount of Entry Fee .. £ 6 : 0 : When applied for,
Special £ 161 : 10 : 18-11-1936
Donkey Boiler Fee £ 29 : 5 : When received,
AIR RECEIVERS £ 10 : 10 1-2-1937
Travelling Expenses (if any) YEN 101.00

Committee's Minute

TUE. 29 DEC 1936

TUE 2 FEB 1937

Assigned

+ LMC 11-36
C. L. Abergues 20.12.1636.

J. Nicholas & M. Higgins
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation