

REPORT ON OIL ENGINE MACHINERY.

Date of writing Report 19.11.1926 when handed in at Local Office 30/11/1926 Port of Kobe

No. in Survey held at Kobe & Harima. Date, First Survey 25.7.25 Last Survey 19.11.1926

on the Twin Screw vessel "YAHIKO MARU." Tons Gross 5742.4 Net 3394.9

Built at HARIMA. By whom built KOBE STEEL WKS. HARIMA DOCKYARD Yard No. 111 When built 1926

Engines made at KOBE. By whom made " " " Engine No. 63 } When made 1926

Donkey Boilers made at ANNAN, SCOTLAND By whom made COCHRAN. Boiler No. 9478 When made 1926.

Brake Horse Power 3000 (2 ENGS) Owners ITAYA MIYAKICHI Port belonging to KOBE

Nom. Horse Power as per Rule 776 (2 ENGS) Is Refrigerating Machinery fitted for cargo purposes NO. Is Electric Light fitted YES.

OIL ENGINES, &c. Type of Engines SULZER DIESEL 2 or 4 stroke cycle 2 Single or double acting SINGLE

Maximum pressure in cylinders 43 kg/cm² No. of cylinders 8 (2 ENGS) Diameter of cylinders 600 mm No. of cranks 8 (2 ENGS) Length of stroke 1060 mm

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 800 mm Is there a bearing between each crank YES

Revolutions per minute 110 Flywheel dia. 2100 mm Weight 10170 Kgs Means of ignition TEMP. DIE TO COMPRESSION Kind of fuel used HEAVY FUEL OIL.

Crank Shaft, dia. of journals as per Rule 390 mm as fitted 405 mm Crank pin dia. 405 mm Crank Webs Mid. length breadth 600 mm Mid. length thickness 220 mm Thickness parallel to axis shrunk Thickness around eye hole solid

Flywheel Shafts, diameter as per Rule 390 mm as fitted 405 mm Intermediate Shafts, diameter as per Rule 283 mm as fitted 11 5/8" Thrust Shaft, diameter at collars as per Rule 299 mm as fitted 390 mm

Tube Shafts, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 12.33 mm as fitted 12 7/8" Is the shaft fitted with a continuous liner YES

Bronze Liners, thickness in way of bushes as per Rule as fitted 7/8" Thickness between bushes as per rule as fitted 1/16" 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 YES

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 YES Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft YES

Length of Bearing in Stern Bush next to and supporting propeller 4'-6" 53.5 sq. feet

Propeller, dia. 12'-6" Pitch 11'-4" No. of blades 4 Material BRONZE whether Moveable YES Total Developed Surface 62 sq. feet

Method of reversing Engines DIRECT Is a governor or other arrangement fitted to prevent racing of the engine YES Means of lubrication FORCED

Thickness of cylinder liners 45 to 20 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 UPFUNNEL

Cooling Water Pumps, No. 2 CENTRIFUGAL (160 l/min/h) Is the sea suction provided with an efficient strainer which can be cleared within the vessel YES

Bilge Pumps fitted to the Main Engines, No. 1 EACH ENG Diameter 165 mm Stroke 140 mm DA Can one be overhauled while the other is at work YES

Pumps connected to the Main Bilge Line No. and Size BALLAST 200 l/min/h BILGE 100 l/min/h 2 @ 165 x 140 mm DA. How driven ELEC. MOTOR ELEC. MOTOR MAIN ENGINE.

Ballast Pumps, No. and size 1 CENTRIFUGAL 200 l/min/h Lubricating Oil Pumps, including Spare Pump, No. and size EACH ENG 165 x 140 mm DA ENGL. SHAFT

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 Engine and Boiler Room 2-3"

In Holds, &c. No 1-2 @ 3" No 2-2 @ 3 1/2" No 3-3 @ 3" No 4-2 @ 3"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 @ 5"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes YES Are the Bilge Suctions in the Machinery Space 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 BOTH

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 YES

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 ER PLATFORM

On 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 (2 ENGS) No. of stages 3 Diameters 640 x 580 x 140 mm Stroke 560 mm Driven by ENGINE SHAFT

Auxiliary Air Compressors, No. 5 on Aux Engines See Separate Report Driven by

Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 110 x 35 mm Stroke 120 mm Driven by HOT BULB ENGINE SHAFT

Scavenging Air Pumps, No. 2 INDEPENDENT (Brown Boveri) Type 15,900 cu ft/min Stroke EACH BLOWER. Driven by ELECTRIC MOTOR

Auxiliary Engines crank shafts, diameter as per Rule as fitted 170 mm See also Report No 5503 (Aux Engines) on Auxiliary Engines.

IR 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 YES What means are provided for cleaning their inner surfaces INJECTION... 2 1/4 hole at top STORAGE (HP) 270 mm " " + hollow STARTING... 15" x 11" manhole.

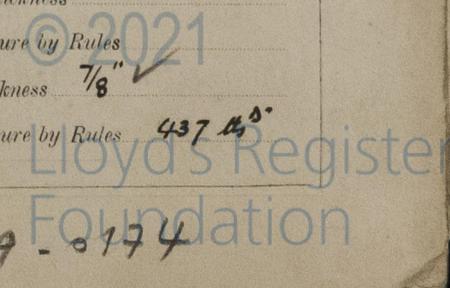
Is there a drain arrangement fitted at the lowest part of each receiver YES

High Pressure Air Receivers, No. 8 Cubic capacity of each 800 LITRES. Internal diameter 540 mm thickness

Seamless, lap welded or riveted longitudinal joint See also DUSSELDORF certificate of 29/10/25 No. 169 & 176 INCLUSIVE. Range of tensile strength Working pressure by Rules

Starting Air Receivers, No. 2 Total cubic capacity about 140 cu ft Internal diameter 3'-7" thickness 7/8"

Seamless, lap welded or riveted longitudinal joint BS STRAPS. Material STEEL. Range of tensile strength 26-32 1/2" Working pressure by Rules 437 lbs



IS A DONKEY BOILER FITTED? **YES.**

If so, is a report now forwarded? **COMPLETION ONLY.**
(SEE ALSO GLASGOW REPORT No. 45401)

HYDRAULIC TESTS:-

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	1925: Oct. 5, 9, 12, 18, 19 1926: Jan. 21, 27, 28	43 Kg/cm ²	1000 lbs"	B	TEST SATISFACTORY
COVERS	1925: Oct. 12, Nov. 2, 5, 28 1926: Jan. 27, 28, 30 Feb. 1	- do -	- do -	- do -	- do -
JACKETS	1925: Sept. 9, Oct. 9, Nov. 7, 11, 13 1926: Jan. 13, 15 Feb. 9	15 lbs"	90 "	- do -	- do -
PISTON WATER PASSAGES	1926: Mar. 4, 5, 17, 18	45 "	- do -	- do -	- do -
MAIN COMPRESSORS—1st STAGE	23.2.26, 10.4.26	5 Kg/cm ²	525 "	- do -	- do -
2nd "	23.2.26, 10.4.26	9.5 "	- do -	- do -	- do -
3rd "	12.1.26, 16.1.26	70 "	2200 "	- do -	- do -
AIR RECEIVERS—STARTING STORAGE	10.9.26, 5.5.26, 6.5.26, 15.6.26, 29.6.26	400 lbs" 70 Kg/cm ²	600 lbs" 2200 lbs"	- do - - do -	- do - - do -
INJECTION (See also SHEET No. 2734)	13.3.26	- do -	- do -	- do -	- do -
AIR PIPES	Apr. 1926: 1, 9, 10, 14, 15, 19, 20, 26	- do -	- do -	- do -	- do -
FUEL PIPES	14.4.26, 15	- do -	- do -	- do -	- do -
FUEL PUMPS	8.12.25, 12.1.26, 14.2.26	- do -	- do -	- do -	- do -
SILENCER					
EXHAUST PIPE WATER JACKET	27.10.25, 6.11.25, 5.12.25, 5.2.26	15 lbs"	90 lbs"	- do -	- do -
SEPARATE FUEL TANKS	13.9.26	✓	15 ft head	B	- do -

PLANS. Are approved plans forwarded herewith for Shafting 28/10/25 21/1/26. Receivers (STARTING ONLY) 12.4.26 Separate Tanks 23.1.26.
(If not, state date of approval)
Donkey Boilers ✓ General Pumping Arrangements 16.4.26. Oil Fuel Burning Arrangements 25.9.26.

SPARE GEAR See separate list attached.

The foregoing is a correct description, THE KOBE STEEL WORKS, LTD.
Id. Mikami Manufacturer.

Dates of Survey while building	During progress of work in shops	During erection on board vessel	Total No. of visits
1925 July 25-28 Aug. 4, 7, 13, 17, 18, 25 Sept. 2, 4, 10, 15, 16, 17, 18 Oct. 13, 15, 16, 17, 19, 21, 22, 24, 30 Nov. 21, 22, 24, 30	1925 July 25-28 Aug. 4, 7, 13, 17, 18, 25 Sept. 2, 4, 10, 15, 16, 17, 18 Oct. 13, 15, 16, 17, 19, 21, 22, 24, 30 Nov. 21, 22, 24, 30	1926 July 5, 15, 31 Sept. 6, 7, 10, 22, 23 Oct. 1, 7, 11, 15, 19, 26, 29	228

Dates of Examination of principal parts—Cylinders 27.2.26 Covers 2.3.26 Pistons 10.2.26 Rods 3.3.26 Connecting rods 3.3.26
Crank shaft 27.2.26 Flywheel shaft 2.3.26 Thrust shaft 25.3.26 Intermediate shafts 10.3.26 Tube shaft 15.7.26
Screw shafts 15.7.26 Propellers 15.7.26 Stern tubes 24.6.26 Engine seatings Engines holding down bolts 7.9.26

Completion of fitting sea connections 26.7.26 Completion of pumping arrangements Engines tried under working conditions
Crank shaft, Material STEEL Identification Mark B No 768 Flywheel shaft, Material STEEL Identification Mark B No 782
Thrust shaft, Material STEEL Identification Mark B No 783 Intermediate shafts, Material STEEL Identification Marks B No 791
Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material STEEL Identification Mark B No 786
B No 817A
B No 817B

Is the flash point of the oil to be used over 150° F. **YES.**
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, &c.) The machinery of this vessel has been constructed under Special Survey according to the Rules + approved plans + the materials + workmanship are sound + good. The machinery has been efficient installed on board, tried under full working conditions + found satisfactory + is in my opinion eligible for the notation + Line 11.26

The amount of Entry Fee ... \$ 60 : -
Special ... \$ 1707 : -
Donkey Boiler Fee ... \$ 50 : -
Travelling Expenses (if any) ... \$ 233 : -
When applied for, 19.26
When received, 29.12.26

J. McMillan
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
Assigned
+ L.M.P. 11.26. C.L.
Oil Engines
FRI. 7 JAN 1927

