

REPORT ON OIL ENGINE MACHINERY.

No. 9660

20 AUG 1936

Received at London Office

Date of writing Report 13th July 1936 When handed in at Local Office 30th July 1936 Port of KobeNo. in Survey held at KOBE & OH. HARIMA
Reg. Book.Date, First Survey 8th March 1935 Last Survey 25th June 1936

Number of Visits

on the Single
Double
Triple
Quadruple Screw vessel

KAG4 MARU

Tons { Gross 6807
Net 3688

Built at OH. HARIMA By whom built HARIMA S.N.E. Co. LTD Yard No. 216 When built 1936

Engines made at KOBE By whom made KAWASAKI Dock YARD Co. LTD Engine No. 222 When made 1936

Donkey Boilers made at HARIMA By whom made HARIMA S.N.E. Co. LTD Boiler No. When made 1935

Brake Horse Power 7,000 Owners KOKUSAI KISEN KAB. KAISHA Port belonging to TOKIO

Nom. Horse Power as per Rule 1850 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES

Trade for which vessel is intended FOREIGN

L ENGINES, &c.—Type of Engines KAWMAN. D72 70/120 HEAVY OIL 2 or 4 stroke cycle 2 Single or double acting Double

Maximum pressure in cylinders 45 kg/cm² Diameter of cylinders 700 mm Length of stroke 1200 mm No. of cylinders 7 No. of cranks 7

Distance of bearings, adjacent to the Crank, measured from inner edge to inner edge 1,090 mm Is there a bearing between each crank Yes

Revolutions per minute 120 Flywheel dia. 2,100 mm Weight 3100 kg Means of ignition Compression Kind of fuel used Heavy oil

Crank Shaft, dia. of journals as per Rule 473 mm Crank pin dia. 500 mm Crank Webs Mid. length breadth 790 mm Thickness parallel to axis 320 mm

Flywheel Shaft, diameter as per Rule 473 mm Intermediate Shafts, diameter as per Rule 398 mm Thrust Shaft, diameter at collars as per Rule 435 mm

Main Shaft, diameter as per Rule 440 mm Is the tube shaft fitted with a continuous liner Yes

Screw Shaft, diameter as per Rule 446 mm Thickness between bushes as per rule 16 mm Is the after end of the liner made watertight in the

Bronze Liners, thickness in way of bushes as per Rule 21.2 mm as fitted 24 mm

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 Continuous

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 Tight fit

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

If so, state type Length of Bearing in Stern Bush next to and supporting propeller 2,445 mm

Propeller, dia. 5,490 mm Pitch 4,365 mm No. of blades 4 Material Bronze whether Moveable Yes Total Developed Surface 9,284 sq. feet

Method of reversing Engines Compressed 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-Sea water, 2-Freshwater Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Large Pumps worked from the Main Engines, No. None Diameter Stroke Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line No. and Size 3, 1 @ 250 T/Hr, 1 @ 30 T/Hr, 1 @ 100 T/Hr

How driven All by electric motors

Ballast Pumps, No. and size 1, 250 T/Hr Lubricating Oil Pumps, including Spare Pump, No. and size 2, @ 70 T/Hr

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 3, 1 @ 30 T/Hr, 1 @ 250 T/Hr, 1 @ 100 T/Hr 2. 90 mm in each hold 1. 120 mm in deep tanks

Holds, &c. 3, 1 @ 30 T/Hr, 1 @ 250 T/Hr, 1 @ 100 T/Hr

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 4, 2 @ 525 T/Hr, 1 @ 250 T/Hr, 1 @ 100 T/Hr

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces

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 None How are they protected

What pipes pass through the deep tanks None 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

apartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Above

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. None No. of stages 1 Diameters 100 Stroke Driven by 1-By Aux. Engine

Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 350/295 Stroke 200 Driven by 1-By Elec Motor

Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 38, 38/69 Stroke 60 Driven by Paraffine Engine

Serving Air Pumps, No. 1, 2 Cyl. tandem Diameter 1,660 mm Stroke 1,000 mm Driven by Main Engine

Auxiliary Engines crank shafts, diameter as per Rule 161 mm as fitted 170 mm

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 Access by manhole & steam

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

High Pressure Air Receivers, No. None Cubic capacity of each Internal diameter thickness

Seamless, lap welded or riveted longitudinal joint Material 28M² (Main) Range of tensile strength 2,000 mm Working pressure by Rules 156 mm

Starting Air Receivers, No. 2-Main 1-Aux Total cubic capacity 500 litres (Aux.) Internal diameter 700 mm thickness 14 mm

Seamless, lap welded or riveted longitudinal joint T.R.D.B.S. Material Steel Range of tensile strength 44-50 kg/cm² Working pressure by Rules 30 kg/cm²

IS A DONKEY BOILER FITTED? Yes If so, is a report now forwarded? Yes
PLANS. Are approved plans forwarded herewith for Shafting 25-6-35 16-2-36 Receivers 9-7-35 Separate Tanks 20-8-35
(If not, state date of approval)
Donkey Boilers 6-6-35 General Pumping Arrangements 18-7-35 Oil Fuel Burning Arrangements 22-10-35

SPARE GEAR
The spare gear is in accordance with the requirements of the Rules with the following important additional items :-

- 1 screw shaft with continuous liner (Art. No. 5063), 2 propeller blades, 1 top & 1 bottom cylinder covers
- 2 complete sets top & bot. fuel valves with springs, 4 sets starting valves complete, 3 top & 3 bottom safety valves
- 1 top & 1 bot. cyl. liner, 1 piston complete with rod, 1 piston rod, 5 sets piston rings for 1 piston.
- 1 set telescopic cooling pipes for one piston, 1 set crankshaft coupling bolts, 10 thrust pads.
- 1 set conn. rod top & bottom end brasses with bolts & nuts for scavenging pump and,
- 1 piston ring for scar. pump.

The foregoing is a correct description,

THE HARIMA SHIP-BUILDING AND ENGINEERING CO., LTD.
18-7-35
MANAGING DIRECTOR.

Dates of Survey while building	During progress of work in shops--	1935 March 8, 14, 15, 16, 18, 19, 20, 22, 25, 28, April 1, 5, 8, 10, 12, 13, 15, 19, 27, May 1, 3, 4, 7, 8, 9, 11, 13, 15, 17, 20, 27, 28, 31, June 2, 6, 7, 11, 14, 18, 19, 22, 26, 28, 29, July 1, 3, 5, 8, 10, 12, 15, 19, 23, 26, 29, Aug. 2, 5, 7, 9, 12, 14, 16, 19, 21, 23, 26, 29, 30, Sept. 2, 3, 7, 10, 16, 19, 27, 28, 30, Oct. 1, 4, 5, 8, 16, 18, 21, 23, 25, 31, Nov. 2, 4, 6, 8, 9, 11, 12, 13, 16, 18, 19, 22, 23, 27, 30, Dec. 5, 9, 12, 19, 20, 21
	During erection on board vessel--	1936 Jan. 7, 8, 13, 14, 16, 17, 18, 20, 22, 24, 25, 27, 28, 30, Feb. 1, 5, 6, 10, 12, 19, 24, 25, 28, 29, March 2, 4, 5, 9, 11, 17, 18, 28, 29, 30, Feb. 17, March 2, 25, 30, April 1, 4, 7, 13, 18, 20, May 5, 12, June 1, 3, 5, 11, 12, 23, 29.
	Total No. of visits	165

Dates of Examination of principal parts--Cylinders	18-1-36	Covers	23-1-36	Pistons	22-1-36	Rods	7-1-36	Connecting rods	7-1-36
Crank shaft	28-12-35	Flywheel shaft	9-1-36	Thrust shaft	9-1-36	Intermediate shafts	10-3-36	Tube shaft	✓
Screw shaft	1-4-36	Propeller	4-6-36	Stern tube	7-4-36	Engine seatings	16-4-36	Engines holding down bolts	16-4-36
Completion of fitting sea connections	16-4-36	Completion of pumping arrangements	5-6-36	Engines tried under working conditions	20-6-36				
Crank shaft, Material	Forged Steel	Identification Mark	1170, 1199, 1200, 1203, 1244, 1245, 1283	Flywheel shaft, Material	Forged Steel	Identification Mark	4768		
Thrust shaft, Material	Forged Steel	Identification Mark	4581	Intermediate shafts, Material	Forged Steel	Identification Marks	5020		
Tube shaft, Material	✓	Identification Mark	✓	Screw shaft, Material	Forged Steel	Identification Mark	5064		

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 Yes If so, have the requirements of the Rules been complied with Yes
Is this machinery duplicate of a previous case Yes If so, state name of vessel KINAGASA MARU

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

This machinery has been constructed under Special Survey in accordance with the Rules & approved plans.

The materials & workmanship are good.

On completion, the machinery was installed in the vessel in accordance with the Rules afterwards tested under full working conditions & is eligible, in our opinion for classification with the record of + L.M.C. 6.36, OIL ENGINE D.B. 100 lb. per sq. inch & T.S. (C.L.) 6.36.

The amount of Entry Fee	£ 6 : 11 : 3	When applied for,	19
Special	£ 35 : 11 : 3	When received,	19
Donkey Boiler Fee	£ 35 : 11 : 3		
Travelling Expenses (if any)	£ 25 : 0 : 0		

Committee's Minute

Assigned

TUE. 25 AUG 1936

+ L.M.C. 6.36 D.B. 100 lb. of Oil Engines

For C. Macpherson & self
J. Hamada
Chief Engineer Surveyor to Lloyd's Register of Shipping.
Lloyd's Register Foundation