

REPORT ON MACHINERY.

No. 1240.

Received at London Office

THU. 21 AUG. 1919

Date of writing Report 7th July 1919 When handed in at Local Office 7th July 1919 Port of **NAGASAKI**
No. in Survey held at **NAGASAKI** Date, First Survey 3rd Sept. 1918 Last Survey 24th June 1919
Reg. Book. on the s.s. "Genoa Maru" & "Suwazan Maru" (Number of Voids 68) Gross 6791
Master **K. Ogura** Built at **Nagasaki** By whom built **Mitsubishi Zosen Kaisha** When built 1919
Engines made at **Nagasaki** By whom made **Mitsubishi Zosen Kaisha** when made 1919
Boilers made at **Nagasaki** By whom made **Mitsubishi Zosen Kaisha** when made 1919
Registered Horse Power Owners **Nippon Yusen Kaisha** Port belonging to **Tokio**
Nom. Horse Power as per Section 28 518 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 26 $\frac{1}{2}$, 44 $\frac{1}{2}$, 75 $\frac{3}{8}$ Length of Stroke 48" Revs. per minute 82 Dia. of Screw shaft as per rule 15.96 Material of screw shaft as fitted 16.5 Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liner fitted Is the after end of the liner made water tight in the propeller boss ✓ If the liner is in more than one length are the joints burned ✓ 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 ✓ Length of stern bush 5'6 $\frac{5}{8}$ "

Dia. of Tunnel shaft as per rule 13.744 Dia. of Crank shaft journals as per rule 14.427 Dia. of Crank pin 15" Size of Crank webs 22 $\frac{1}{2}$ x 9 $\frac{1}{2}$ Dia. of thrust shaft under collar 14.75 Dia. of screw 18.3" Pitch of Screw 19.3" No. of Blades 4 State whether moveable Yes. Total surface 96.8 sq. ft.

No. of Feed pumps 3 Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines 4 Sizes of Pumps 1 Bellows 7 $\frac{1}{2}$ x 5 $\frac{1}{2}$ and size of Suctions connected to both Bilge and Donkey pumps 2 Fuel Pumps 7 $\frac{1}{2}$ x 7 $\frac{1}{2}$ x 21"

In Engine Room 3 @ 3 $\frac{1}{2}$ " No. 3 Hold 2 @ 3 $\frac{1}{2}$ " No. 4 Hold 2 @ 3 $\frac{1}{2}$ " No. 5 Hold 2 @ 3 $\frac{1}{2}$ " Tunnel well 1 @ 2 $\frac{1}{2}$ "

No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump. Is a separate Donkey Suction fitted in Engine room & size Yes 3 $\frac{1}{2}$ "

Are all the bilge suction pipes fitted with roses Yes. Are the roses in Engine room always accessible Yes. Are the sluices on Engine room bulkheads always accessible Yes.

Are all connections with the sea direct on the skin of the ship Yes. Are they Valves or Cocks Both.

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes. Are the Discharge Pipes above or below the deep water line Below.

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 are carried through the bunkers Bilge pipes How are they protected With steel plates.

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes.

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes.

Is the Screw Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes. worked from Shelter deck.

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Midvale Steel Co. & Allman's Steel Co.

Total Heating Surface of Boilers 5304.7 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 2 Cylindrical single ended 15'0" x 11'6" 7104.69 sq. ft. 13'0" x 11'6"

Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 30th May 1919 No. of Certificate 91

Can each boiler be worked separately Yes Area of fire grate in each boiler 65.4 sq. ft. No. and Description of Safety Valves to each boiler 2 Spring loaded Area of each valve 9.62 sq. in. Pressure to which they are adjusted 203 lbs. Are they fitted with easing gear Yes.

Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 15'3" Length 11'6" Material of shell plates Steel

Thickness 1 $\frac{1}{2}$ " Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Double lap.

long. seams 2 Straps Diameter of rivet holes in long. seams 1 $\frac{7}{8}$ " Pitch of rivets 9 $\frac{1}{2}$ x 14 $\frac{3}{4}$ Lap of plates or width of butt straps 21 $\frac{1}{2}$ "

Per centages of strength of longitudinal joint rivets 84.8 Working pressure of shell by rules 219 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring 36 $\frac{1}{2}$ x 32 $\frac{1}{2}$ x 1 $\frac{1}{2}$ No. and Description of Furnaces in each boiler 3 Monson's Suspension Material Steel Outside diameter 4'1 $\frac{3}{4}$ "

Length of plain part top ✓ Thickness of plates crown 5" Description of longitudinal joint headed No. of strengthening rings ✓

Working pressure of furnace by the rules 202 lbs. Combustion chamber plates: Material Steel Thickness: Sides 1 $\frac{1}{2}$ " Back 2 $\frac{3}{8}$ " Top 2 $\frac{3}{8}$ " Bottom 1"

Pitch of stays to ditto: Sides 8 $\frac{1}{2}$ x 8" Back 8 $\frac{1}{2}$ x 10" Top 7 $\frac{1}{2}$ x 8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 207 lbs.

Material of stays Steel Area at smallest part 2.02 sq. in. Area supported by each stay 85 sq. in. Working pressure by rules 213 lbs. End plates in steam space:

Material Steel Thickness 1 $\frac{1}{2}$ " Pitch of stays 16" x 21 $\frac{1}{2}$ " How are stays secured Double nuts Working pressure by rules 206 lbs. Material of stays Steel

Area at smallest part 7.669" Area supported by each stay 344 sq. in. Working pressure by rules 232 lbs. Material of Front plates at bottom Steel

Thickness 7 $\frac{1}{8}$ " Material of Lower back plate Steel Thickness 3 $\frac{1}{2}$ " Greatest pitch of stays 14 $\frac{1}{2}$ " Working pressure of plate by rules 295 lbs.

Diameter of tubes 3" Pitch of tubes 4 $\frac{1}{2}$ x 4 $\frac{1}{8}$ " Material of tube plates Steel Thickness: Front 7 $\frac{1}{8}$ " Back 7 $\frac{1}{8}$ " Mean pitch of stays 8 $\frac{3}{8}$ "

Pitch across wide water spaces 13 $\frac{1}{2}$ " Working pressures by rules 242 lbs. Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 10 $\frac{1}{2}$ x 7 $\frac{1}{8}$ double Length as per rule 32.4" Distance apart 7 $\frac{1}{2}$ x 8" Number and pitch of stays in each 3 @ 7 $\frac{1}{2}$ "

Working pressure by rules 315 lbs. Steam dome: description of joint to shell ✓ % of strength of joint ✓

Diameter ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet holes ✓

Pitch of rivets ✓ Working pressure of shell by rules ✓ Crown plates ✓ Thickness ✓ How stayed ✓

Tested by Hydraulic Pressure to

SUPERHEATER. Type ✓ Date of Approval of Plan ✓

Date of Test ✓ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Material of Safety Valve ✓ Pressure to which each is adjusted ✓ Is Easing Gear fitted ✓

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 1 H.P. valve spindle, 1 L.P. valve spindle, 2 eccentric rods, 1 set each of H.P. I.P. & L.P. packing rings, 1 set each of metallic packings for piston rods & valve spindles, 1 set each of top and bottom brasses and bolts for one connecting rod, $\frac{1}{2}$ total number of junk ring bolts, 1 complete set of coupling bolts, 1 complete set of main bearing bolts, 1 air pump rod, 1 set of air pump valves, 1 impeller spindle for circulating pump, 3 cylinder escape valve springs, 1 complete set of valves & seats for feed & bilge pumps, 1 complete set of valves & seats for main & donkey feed checks, $\frac{1}{2}$ total number of condenser tubes, $\frac{1}{2}$ total number of condenser ferrules, 100 assorted bolt nuts, 150 lbs. of assorted steel plates, 30 lbs. of assorted steel bars &

The foregoing is a correct description,

NAGASAKI WORKS, MITSUBISHI ZOSSEN KASHA, LTD.

For *General Manager*

Manufacturer.

Dates of Survey while building	{	During progress of work in shops --	1918 Sept. 3.5. 1919 Jan. 16.20.27.31. Feb. 1.6.7.8.15.19.21. Mar. 1.7.12.17.20.26.29. Apr. 1.2.4.8.
		During erection on board vessel --	9.10.12.14.16.17.21.23.26.28.29. May 2.3.5.6.8.9.10.14.15.16.20.22.26.27.29.30.31. June 2.4.5.6.
		Total No. of visits (68)	7.9.10.11.12.14.16.17.19.23.24

Is the approved plan of main boiler forwarded herewith *Yes*.

Dates of Examination of principal parts—Cylinders *21.4.19* Slides *21.4.19* Covers *21.4.19* Pistons *4.6.19* Rods *4.6.19*
Connecting rods *4.6.19* Crank shaft *20.3.19* Thrust shaft *2.4.19* Tunnel shafts *27.10.4.19* Screw shaft *17.12.17* Propeller *29.5.19*
Stern tube *29.5.19* Steam pipes tested *31.5.19* Engine and boiler seatings *16.5.19* Engines holding down bolts *9.6.19*
Completion of pumping arrangements *17.6.19* Boilers fixed *7.6.19* Engines tried under steam *19.6.19*
Completion of fitting sea connections *5.6.19* Stern tube *30.5.19* Screw shaft and propeller *2.6.19*

Main boiler safety valves adjusted *17.6.19* Thickness of adjusting washers *1/2 inch*
Material of Crank shaft *Steel* Identification Mark on Do. *A.S.W.* Material of Thrust shaft *Steel* Identification Mark on Do. *A.S.W.*
Material of Tunnel shafts *Steel* Identification Marks on Do. *A.S.W.* Material of Screw shafts *Steel* Identification Marks on Do. *M.S.I.*
Material of Steam Pipes *Steel & Copper* Test pressure *600 lbs. & 400 lbs.*

Is an installation fitted for burning oil fuel *Yes* Is the flash point of the oil to be used over 150°F. *Yes*

Have the requirements of Section 49 of the Rules been complied with *Yes*

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *"Kaian Maru"*

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

These Engines and Boilers have been constructed under Special Survey, in accordance with the Rules, and of good materials and workmanship. They have been securely fitted on board, and have been satisfactorily tried under steam.

The Machinery of this vessel is eligible, in my opinion, for the record of **LMC 7.19** in the Register Book.

Mean speed on Trial in water ballast condition = 15.22 knots.

It is submitted that this vessel is eligible for THE RECORD. + LMC 6.19. F.D.

The amount of Entry Fee	<i>300</i>	{	When applied for,
Special	<i>803 25</i>		<i>4 July 1919</i>
Donkey Boiler Fee	£		When received,
Travelling Expenses (if any) £	:		<i>8 July 1919</i>

a. J. Williamson
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 5-SEP. 1919

Assigned

+ June 6.19



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