

REPORT ON MACHINERY.

WED. MAR. 31 1920

Received at London Office

Date of writing Report 14th Feb. 1920 When handed in at Local Office 14th Feb. 1920 Port of NAGASAKI.

in Survey held at NAGASAKI.

Date, First Survey 17th Feb. 1919 Last Survey 20th Jan. 1920

Reg. Book.

(Number of Visits 112)

on the

s.s. "Eastern Crown"

Gross 5814
Tons Net 4091
When built 1920

Master K. Kinoshita Built at Nagasaki By whom built Mitsubishi Josen Kaisha

Engines made at Nagasaki By whom made Mitsubishi Josen Kaisha when made 1920

Boilers made at Nagasaki By whom made Mitsubishi Josen Kaisha when made 1920

Registered Horse Power Owners U. S. Shipping Board, Emergency Port belonging to

Nom. Horse Power as per Section 28 494 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" Length of Stroke 48" Revs. per minute 83 Dia. of Screw shaft as per rule 15.98" as fitted 16 $\frac{1}{2}$ " Material of screw shaft 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" 8"

Dia. of Tunnel shaft as per rule 13.74" as fitted 14" Dia. of Crank shaft journals as per rule 14.112" as fitted 14 $\frac{3}{4}$ " Dia. of Crank pin 15" Size of Crank webs 22 $\frac{1}{2}$ " x 9 $\frac{1}{2}$ " Dia. of thrust shaft undercollars 14 $\frac{3}{4}$ " Dia. of screw 18.3" Pitch of Screw 19.9" No. of Blades 11 State whether moveable Yes Total surface 96.8 sq. ft.

No. of Feed pumps 2 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 7 Sizes of Pumps 2 $\frac{1}{2}$ " 3" 4" 5" 6" 8" 10" 12" 14" 16" 18" 20" 22" 24" 26" 28" 30" No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room 3 @ 3 $\frac{1}{2}$ " 10" 12" 14" 16" 18" 20" 22" 24" 26" 28" 30" No. 1. hold 2 @ 3 $\frac{1}{2}$ " No. 2. hold 2 @ 3 $\frac{1}{2}$ "Cofferdam bilge 1 @ 2" No. 3. hold 2 @ 3 $\frac{1}{2}$ " No. 4. hold 2 @ 3 $\frac{1}{2}$ " Tunnel well 1 @ 3"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 None

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 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 are carried through the bunkers None How are they protected

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 Bridge deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Illinois Steel Coy.

J.S.B.

Total Heating Surface of Boilers 6583.8 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 3 Cylindrical, single ended.

Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 19.11.19 No. of Certificate 99

Can each boiler be worked separately Yes Area of fire grate in each boiler 57.2 sq. ft. No. and Description of Safety Valves to

each boiler 2 Spring loaded Area of each valve 9.62 sq. ins. Pressure to which they are adjusted 205 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 9' 5" Mean dia. of boilers 14' 0" Length 11' 6" Material of shell plates Steel

Thickness 1 $\frac{3}{8}$ " Range of tensile strength 31,000 to 36,000 lbs. 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 $\frac{7}{16}$ " Pitch of rivets 9 $\frac{1}{2}$ " x 4 $\frac{3}{4}$ " Lap of plates or width of butt straps 20 $\frac{1}{2}$ "

Per centages of strength of longitudinal joint rivets 92.3 Working pressure of shell by rules 213 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring 37" x 33" x 1 $\frac{3}{8}$ " No. and Description of Furnaces in each boiler 3 Morrison's Material Steel Outside diameter 3' 7 $\frac{3}{4}$ "

Length of plain part top 5' 8" bottom 5' 8" Thickness of plates crown 5' 8" bottom 5' 8" Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 230 lbs. Combustion chamber plates: Material Steel Thickness: Sides 3 $\frac{3}{4}$ " Back 3 $\frac{3}{4}$ " Top 3 $\frac{3}{4}$ " Bottom 1 $\frac{5}{16}$ "Pitch of stays to ditto: Sides 11 $\frac{1}{4}$ " x 7 $\frac{1}{4}$ " Back 10 $\frac{1}{8}$ " x 9" Top 11 $\frac{1}{2}$ " x 7" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 212 lbs.

Material of stays Steel Area at smallest part 2.02 sq. ins. Area supported by each stay 81.6 sq. ins. Working pressure by rules 223 lbs. End plates in steam space:

Material Steel Thickness 1 $\frac{3}{32}$ " Pitch of stays 18" x 20" How are stays secured Double nuts Working pressure by rules 214 lbs. Material of stays Steel

Area at smallest part 8.295 sq. ins. Area supported by each stay 360 sq. ins. Working pressure by rules 237 lbs. Material of Front plates at bottom Steel

Thickness 3 $\frac{1}{2}$ " Material of Lower back plate Steel Thickness 3 $\frac{1}{2}$ " Greatest pitch of stays 13 $\frac{3}{4}$ " Working pressure of plate by rules 219 lbs.Diameter of tubes 3 $\frac{1}{2}$ " Pitch of tubes 4 $\frac{3}{8}$ " x 4 $\frac{1}{2}$ " Material of tube plates Steel Thickness: Front 3 $\frac{1}{2}$ " Back 3 $\frac{1}{2}$ " Mean pitch of stays 11' 8"Pitch across wide water spaces 13 $\frac{3}{4}$ " Working pressures by rules 206 lbs. Girders to Chamber tops: Material Steel Depth andthickness of girder at centre 10 $\frac{1}{4}$ " x 5 $\frac{1}{2}$ " double Length as per rule 31.9" Distance apart 11 $\frac{1}{2}$ " x 9 $\frac{3}{4}$ " Number and pitch of stays in each 3 @ 7"

Working pressure by rules 217 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

SUPERHEATER. Type Date of Approval of Plan

Tested by Hydraulic Pressure to

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

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

W1009-0033

Lloyd's Register Foundation

No.

If so, is a report now forwarded?

The foregoing is a correct description,

NAGASAKI WORKS, MITSUBISHI ROSEN-KAISHA, LTD.

GENERAL MANAGER

Manufactures.

Dates of Survey while building	During progress of work in shops - -	1919 Feb. 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 1. 11, 13, 14, 21, 26, 29, Apr. 4, 5, 7, 8, 15, 16, 21, 22, 24, 25, 29, May, 2, 3, 8, 9, 10, 20, 26, 27, 28, June 9, 17, 23, 25, 26, July 11, 12, 17, 21, 23, 24, Aug. 1, 2, 8, 11, 13, 15, 21, 23, 27, 30, Sept. 2, 3, 5, 6, 8, 9, 10, 15, 17, 22, 23, 27, 30, Oct. 1, 3, 11, 13, 14, 17, 20, 21, 22, 23, 24, 27, 28, 29, 30, Nov. 6, 10, 11, 12, 15, 19, 20, 21, 24, 27, 28, 29, Dec. 2, 3, 4, 5, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 1920 Jan. 10, 17, 19, 20
	During erection on board vessel - -	9, 10, 13, 15, 16, 17, 19, 20, 24, 26
	Total No. of visits	112.
		Is the approved plan of main boiler forwarded herewith <u>Yes.</u>

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 20.11.19 Slides 6.12.19 Covers 20.11.19 Pistons 6.12.19 Rods 6.12.19
Connecting rods 6.12.19 Crank shaft Working 10.11.19 Thrust shaft 30.9.19 Tunnel shafts 1.10.19 Screw shaft Working 21.7.19 Propeller 6.11.19
Stern tube 27.11.19 Steam pipes tested 9.12.19 Engine and boiler seatings 19.11.19 Engines holding down bolts 16.12.19
Completion of pumping arrangements 26.12.19 Boilers fixed 10.12.19 Engines tried under steam 10.1.20
Completion of fitting sea connections 6.12.19 Stern tube 29.11.19 Screw shaft and propeller 2.12.19
Main boiler safety valves adjusted 26.12.19 Thickness of adjusting washers Jamb nuts ✓
Material of Crank shaft Steel ✓ Identification Mark on Do. No. 157 (A.S.W.) Material of Thrust shaft Steel ✓ Identification Mark on Do. No. 158 (A.S.W.)
Material of Tunnel shafts Steel ✓ Identification Marks on Do. No. 157 (A.S.W.) Material of Screw shafts Steel ✓ Identification Marks on Do. No. 159 (A.S.W.)
Material of Steam Pipes Solid drawn Steel Test pressure 600 lbs. ✓
Is an installation fitted for burning oil fuel Partly ✓ 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 Partly. See below. ✓
Is this machinery duplicate of a previous case Yes. ✓ If so, state name of vessel "Kaiian Maru"

General Remarks (State quality of workmanship, opinions as to class, &c. all the necessary piping for the oil fuel installation has been fitted to the fore & after peaks, Nos. 1, 2, 5, & 6 ballast tanks, and the settling tanks in Engine Room. The spindles of the valves to the peaks are operated from the deck, and steam to the oil pump is controlled from the deck, clear of the casing. The vessel has left port, burning coal; and on arrival at Seattle oil burners are to be fitted, and the installation completed. The Surveyors there have been advised.

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.

✠ LMC 1.20 in the Register Book, the record of "Fitted for oil fuel F.P. above 150" being deferred until the installation is completed.

Mean speed on Trial in water ballast condition = 15.024 knots.

The amount of Entry Fee	...	<i>Yen</i>	<i>30⁰⁰</i>	:	} When applied for, <i>4th Feb</i> 19 <i>20</i>	
Special	...	<i>Yen</i>	<i>782²⁵</i>	:		
Donkey Boiler Fee	...	£	<i>—</i>	:		
Travelling Expenses (if any)	£	<i>—</i>	:	:		
					:	When received, 19.....

a. J. Williamson

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. APR 9 1920

Assigned

12. MC 1:20 F. 2

CERTIFICATE WRITTEN.

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Foundation