

REPORT ON MACHINERY.

No. 1289

MON. JUN. 21 1920

Date of writing Report 13th May 1920 When handed in at Local Office 13th May 1920 Port of NAGASAKI.

No. in Survey held at NAGASAKI. Date, First Survey 1st August, 1919 Last Survey 1st May 1920.

Reg. Book. on the Twin s.s. "Lima Maru" (Number of Visits 105)

Master J. Araki Built at Nagasaki By whom built Mitsubishi Josen Kaisha When built 1920

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 Nippon Yusen Kaisha Port belonging to Tokio

Com. Horse Power as per Section 28 620 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Twin screw, triple expansion No. of Cylinders 6 No. of Cranks 6

Dia. of Cylinders 20 1/2, 33 1/2, & 56 Length of Stroke 45 Revs. per minute 89 Dia. of Screw shaft 12.98 Material of Steel

the screw shaft fitted with a continuous liner the whole length of the stern tube Yes. Is the after end of the liner made water tight

the propeller boss Yes If the liner is in more than one length are the joints burned 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 Length of stern bush 5.2

Dia. of Tunnel shaft 11.6 Dia. of Crank shaft journals 12.155 Dia. of Crank pin 13 Size of Crank webs 17 x 8 Dia. of thrust shaft under

bars 12.2 Dia. of screw 15.9 Pitch of Screw 17.9 No. of Blades 4 State whether moceable Yes Total surface 77.6 sq. ft. expanded

No. of Feed pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 5 1/2 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 1 Sizes of Pumps 10 1/2 x 8 x 24 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 1 Duplex Ballast In Holds, &c. 2 each @ 3 1/2" in Nos. 1, 2, 3, 4, 5 Holds and in

Crossbunker. 1 @ 4" in Tunnel, and 1 @ 5 1/2" in Dup tank.

No. of Bilge Injections 2 sizes 9" Connected to condenser, or to circulating pump. Is a separate Donkey Suction fitted in Engine room & size Yes, 3 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 Yes

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

MANIFOLDERS, &c.—(Letter for record S.) Manufacturers of Steel David Colville Sons & Kawasaki Dockyard Co.,

Heating Surface of Boilers 8903 Is Forced Draft fitted Yes. No. and Description of Boilers 4 Cylindrical, single ended.

Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 28. 2. 20 No. of Certificate 102.

Can each boiler be worked separately Yes. Area of fire grate in each boiler 56.2 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 203 lbs. Are they fitted with easing gear Yes.

Greatest distance between boilers or uptakes and bunkers or woodwork 16" Mean dia. of boilers 14.3" Length 11.6" Material of shell plates Steel

Thickness 1 1/2" Range of tensile strength 25 to 32 tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Double riveted lap.

seams Double riveted Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 1/2" & 4 3/4" Lap of plates or width of butt straps 20 1/2"

Percentages of strength of longitudinal joint 88.6% Working pressure of shell by rules 209 lbs. Size of manhole in shell 12" x 16"

of compensating ring 3 1/2" x 35 1/2" x 1 1/2" No. and Description of Furnaces in each boiler 3 Morrison's bulb Material Steel Outside diameter 45 3/4"

Thickness of plates 5" Description of longitudinal joint Butted No. of strengthening rings Yes

Working pressure of furnace by the rules 244 lbs. Combustion chamber plates: Material Steel Thickness: Sides 1/2" Back 1/2" Top 1/2" Bottom 1/2"

No. of stays to ditto: Sides 8" x 9" Back 8 1/2" x 9" Top 8 1/2" x 9" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 204 lbs.

Material of stays Steel Area at smallest part 2.03 sq. ins. Area supported by each stay 84.52 sq. ins. Working pressure by rules 216 lbs. End plates in steam space:

Material Steel Thickness 1 3/8" Pitch of stays 19 1/2" x 16 1/2" How are stays secured Double nuts Working pressure by rules 215 lbs. Material of stays Steel

Area at smallest part 7.06 sq. ins. Area supported by each stay 337 sq. ins. Working pressure by rules 217 lbs. Material of Front plates at bottom Steel

Thickness 3/4" Material of Lower back plate Steel Thickness 1/2" Greatest pitch of stays 14 1/2" x 9 1/2" Working pressure of plate by rules 216 lbs.

Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 8 7/8"

Distance across wide water spaces 13 3/4" Working pressures by rules 216 lbs. Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 10" x 3/4" double Length as per rule 29 3/16" Distance apart 8 1/2" Number and pitch of stays in each 2 @ 9"

Working pressure by rules 325 lbs. Steam dome: description of joint to shell Yes % of strength of joint Yes

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

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

SUPERHEATER. Type Yes Date of Approval of Plan Yes Tested by Hydraulic Pressure to Yes

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

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

IS A DONKEY BOILER FITTED?

No.

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— As per Rule, and in addition 1 Piston rod with nut, 2 shoes, 1 set of crosshead bushes, 1 set of crank pin bushes, 1 slide valve rod, 2 eccentric shafts, 1 pair of eccentric straps, 1 air pump rod with nut, 1 air pump head valve, 1 centrifugal pump shaft, 1 crank shaft, 1 propeller shaft, 2 bronze propeller blades for each engine, 1 set of rings & springs for each piston of both engines, 1 set main feed check valve, set spindle, 12 Boiler tubes, 4 safety valve springs.

The foregoing is a correct description, NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

General Manager

Manufacturer.

1919 Aug. 1, 29. Sept. 27. Oct. 3, 4, 11, 14, 15, 17, 20, 21, 22, 24, 25, 27, 28, 29, 30. Nov. 1, 3, 4, 5, 6, 11, 13, 17, 18, 20. Dec. 3, 4, 9, 11, 15, 16, 17, 18, 20, 23. 1920 Jan. 6, 8, 12, 14, 17, 21, 24, 26, 27, 29, 30, 31. Feb. 2, 3, 4, 6, 7, 12, 13, 14, 16, 17. Mar. 1, 3, 4, 5, 6, 8, 9, 10, 11, 12, 15, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31. Apr. 5, 7, 12, 14.

Dates of Survey while building: During progress of work in shops, During erection on board vessel, Total No. of visits

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Is the approved plan of main boiler forwarded herewith?

Dates of Examination of principal parts: Cylinders, Slides, Covers, Pistons, Rods, Connecting rods, Crank shaft, Thrust shaft, Tunnel shafts, Stern tube, Steam pipes tested, Engine and boiler seatings, Engines holding down bolts, Completion of pumping arrangements, Boilers fixed, Engines tried under steam, Completion of fitting sea connections, Stern tube, Screw shaft and propeller, Main boiler safety valves adjusted, Thickness of adjusting washers, Jamb nuts

Material of Crank shaft: Steel, Identification Mark on Do. Material of Thrust shaft: Steel, Identification Mark on Do. Material of Tunnel shafts: Steel, Identification Marks on Do. Material of Screw shafts: Steel, Identification Marks on Do. Material of Steam Pipes: Solid drawn steel, Test pressure: 600 lbs.

Is an installation fitted for burning oil fuel? Have the requirements of Section 49 of the Rules been complied with?

Is this machinery duplicate of a previous case? Yes. If so, state name of vessel: 'Sauruga 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 material 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 THE RECORD, L.M.C. 5.20 in the Register Book.

Mean speed on trial when 1/5 loaded = 14.644 knots.

It is submitted that this vessel is eligible for THE RECORD, L.M.C. 5.20 F.D.

Signatures and dates: 25/6/20

The amount of Entry Fee: 30.00, Special: 89.25, Donkey Boiler Fee, Travelling Expenses (if any). When applied for: 15th May 1920. When received: 15th May 1920.

Committee's Minute Assigned: TUE. JUN. 29 1920 + L.M.C. 5.20 F.D.

Certificate (if required) to be sent to Registrar's Office

The Surveyors are requested not to write on or below the space for Committee's Minute.

