

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 $\frac{1}{2}$ " 33 $\frac{1}{2}$ " 56" Length of Stroke 48" Revs. per minute 89 ✓ Dia. of Screw shaft as per rule 12.98" Material of screw shaft as fitted 13 $\frac{1}{2}$ " ✓

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 ✓ 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

screws are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 5' 2" ✓

Dia. of Tunnel shaft as per rule 11.6" as fitted 12" ✓ Dia. of Crank shaft journals as per rule 12.185" as fitted 12 $\frac{1}{2}$ " ✓ Dia. of Crank pin 13" Size of Crank webs 17" x 8" Dia. of thrust shaft underbars 12 $\frac{1}{2}$ " ✓ Dia. of screw 15.9" ✓ Pitch of Screw 17' 9" ✓ No. of Blades 4 ✓ State whether moveable Yes. Total surface 77.6 sq. ft. expanded 66.5 " " projectedNo. of Feed pumps 2 ✓ Diameter of ditto 4 $\frac{1}{2}$ " ✓ Stroke 24" ✓ Can one be overhauled while the other is at work Yes. ✓No. of Bilge pumps 2 ✓ Diameter of ditto 5 $\frac{1}{2}$ " ✓ Stroke 24" ✓ Can one be overhauled while the other is at work Yes. ✓No. of Donkey Engines 1 ✓ Sizes of Pumps 10 $\frac{1}{2}$ " x 8" x 24" 7" x 5" x 12" 10" x 12" x 12" 3 $\frac{1}{2}$ " x 5" x 9" No. and size of Suctions connected to both Bilge and Donkey pumpsEngine Room 1 ✓ In Holds, &c. 2 each 3 $\frac{1}{2}$ " in Nos. 1, 2, 3, 4, 5 Holds and inCrossbunker. 1 each 4" in Tunnel, and 1 each 5 $\frac{1}{2}$ " 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 $\frac{1}{2}$ " ✓

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 No. ✓

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

MANUFACTURERS, &c.—(Letter for record 8903 ✓) Manufacturers of Steel David Colville Sons & Kawasaki Dockyard Co. 4. S. B.

Total Heating Surface of Boilers 8907.4 ✓ 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 $\frac{1}{2}$ " ✓ Range of tensile strength 25.5-32 tons ✓ Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Double riveted lap. ✓Pitch of rivets 9 $\frac{1}{2}$ " x 4 $\frac{3}{4}$ " ✓ Lap of plates or width of butt straps 20 $\frac{1}{2}$ " ✓

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

No. and Description of Furnaces in each boiler 3 Morrison's tube ✓ Material Steel ✓ Outside diameter 45 $\frac{3}{4}$ " ✓

Thickness of plates crown 5" ✓ bottom 8" ✓ Description of longitudinal joint Butt welded ✓ No. of strengthening rings ✓

Working pressure of furnace by the rules 244 lbs. ✓ Combustion chamber plates: Material Steel ✓ Thickness: Sides 1 $\frac{1}{2}$ " ✓ Back 1 $\frac{1}{2}$ " ✓ Top 1 $\frac{1}{2}$ " ✓ Bottom 1 $\frac{1}{2}$ " ✓No. of stays to ditto: Sides 8" x 9" ✓ Back 8 $\frac{1}{2}$ " x 9" ✓ Top 8 $\frac{1}{2}$ " 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 $\frac{3}{4}$ " ✓ Pitch of stays 19 $\frac{1}{2}$ " x 16 $\frac{1}{2}$ " ✓ 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 337.2 sq. ins. Working pressure by rules 217 lbs. ✓ Material of Front plates at bottom Steel ✓

Thickness 3 $\frac{1}{2}$ " ✓ Material of Lower back plate Steel ✓ Thickness 1 $\frac{1}{2}$ " ✓ Greatest pitch of stays 14 $\frac{1}{2}$ " x 9 $\frac{1}{2}$ " ✓ Working pressure of plate by rules 216 lbs. ✓Diameter of tubes 3 $\frac{1}{2}$ " ✓ Pitch of tubes 4 $\frac{1}{2}$ " x 4 $\frac{3}{8}$ " ✓ Material of tube plates Steel ✓ Thickness: Front 3 $\frac{1}{2}$ " ✓ Back 3 $\frac{1}{2}$ " ✓ Mean pitch of stays 8 $\frac{7}{8}$ " ✓Pitch across wide water spaces 13 $\frac{3}{4}$ " ✓ Working pressures by rules 216 lbs. ✓ Girders to Chamber tops: Material Steel ✓ Depth andThickness of girder at centre 10" x 3 $\frac{1}{2}$ " double ✓ Length as per rule 29 $\frac{3}{4}$ " ✓ Distance apart 8 $\frac{1}{2}$ " ✓ Number and pitch of stays in each 2 x 9" ✓

Working pressure by rules 325 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 ✓

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 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, seat & 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. 21. 22. 24. 25. 27. 28. 29. 30. Dec. 3. 4. 9. 11. 15. 16. 17. 18. 20. 23. 24. 25. 27. 28. 29. 30. 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. 18. 19. 20. 22. 23. 24. 25. 26. 27. 29. 30. 31. Apr. 5. 7. 12. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. May 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. June 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. July 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Aug. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Sept. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Oct. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Nov. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Dec. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31.

Dates of Survey while building

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Is the approved plan of main boiler forwarded herewith?

Dates of Examination of principal parts—Cylinders 17. 2. 20 Slides 26. 3. 20 Covers 17. 2. 20 Pistons 26. 3. 20 Rods 26. 3. 20 Connecting rods 28. 2. 20 Crank shaft 24. 2. 20 Thrust shaft 24. 2. 20 Tunnel shafts 12. 1. 20 17. 1. 20 27. 1. 20 30. 1. 20 30. 2. 20 Screw shaft 28. 2. 20 Propeller 15. 1. 20 Stern tube 6. 3. 20 Steam pipes tested 26. 3. 20 Engine and boiler seatings 3. 3. 20 Engines holding down bolts 29. 3. 20 Completion of pumping arrangements 12. 4. 20 Boilers fixed 27. 3. 20 Engines tried under steam 14. 4. 20 Completion of fitting sea connections 24. 3. 20 Stern tube 22. 3. 20 Screw shaft and propeller 23. 3. 20 Main boiler safety valves adjusted 12. 3. 20 Thickness of adjusting washers 1/16 inch Material of Crank shaft Steel Identification Mark on Do. No. 167 A.S.W. Material of Thrust shaft Steel Identification Mark on Do. No. 167 A.S.W. Material of Tunnel shafts Steel Identification Marks on Do. No. 167 A.S.W. Material of Screw shafts Steel Identification Marks on Do. No. 167 A.S.W. Material of Steam Pipes Solid drawn steel Test pressure 600 lbs. Is an installation fitted for burning oil fuel? Is the flash point of the oil to be used over 150°F. 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 L.M.C. 5. 20 in the Register Book.

Mean speed on trial when 1/2 loaded = 14.644 knots.

It is submitted that this vessel is eligible for

THE RECORD. + L.M.C. 5. 20 F.D.

25/6/20

The amount of Entry Fee ... 30/- Special ... 89.2 50 Donkey Boiler Fee ... Travelling Expenses (if any) ... When applied for, 15th May 1920. When received, 15th May 1920.

Committee's Minute

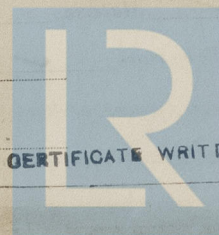
Assigned

TUE. JUN. 29 1920

+ L.M.C. 5. 20 F.D.

A. S. Williamson

Engineer Surveyor to Lloyd's Register of Shipping



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