

# REPORT ON MACHINERY.

Port of Nagasaki

Received at London Office 14th JUL 1902

No. in Survey held at Nagasaki  
Reg. Book.

Date, first Survey 6<sup>th</sup> Aug. 1901 Last Survey 19<sup>th</sup> June 1902

New on the Steel screw steamer "Daiya Maru"

Tons { Gross 2795  
Net 1732

Master M. Nagato Built at Nagasaki By whom built Mitsui Bishi O & E. Wks. When built 1902

Engines made at Nagasaki By whom made Mitsui Bishi O. & E. Wks. when made 1902

Boilers made at " By whom made " " " " when made 1902

Registered Horse Power 278 Owners Mitsui Bishi Goshi Kaisha Port belonging to Nagasaki

Nom. Horse Power as per Section 28 278 Is Electric Light fitted Yes.

**ENGINES, &c.—Description of Engines** Quadruple Expansion No. of Cylinders four No. of Cranks 4

Diameter of Cylinders 20 1/2 : 29 : 42 : 60 Length of Stroke 45 Revolutions per minute 75 Diameter of Screw shaft as per rule 12 1/2  
as fitted 12 1/2

Diameter of Tunnel shaft as fitted 11 3/4 Diameter of Crank shaft journals 11 3/4 Diameter of Crank pin 12 Size of Crank webs 8 1/2 x 16 1/2

Diameter of screw 15 " 3" Pitch of screw 16 " 0" No. of blades 4 State whether moveable Yes Total surface 75 " 0"

No. of Feed pumps Two Diameter of ditto 3 3/4 Stroke 22 1/2 Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two Diameter of ditto 3 3/4 Stroke 22 1/2 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Three Sizes of Pumps Ballast 8 x 10 x 8  
Feed 6 1/2 x 4 1/2 x 6 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room Three (Centre 3 1/2 " Wamp 3") 4 1/2 x 2 1/2 x 4 1/2 In Holds, &c. Two 3" in each of Nos 1, 2, & 3 holds  
One 3" in No 4 hold well. One 3" in tunnel well. Special 7" suction to ballast pump.

No. of bilge injections 1 sizes 7" Connected to condenser, or to circulating pump Ci.p. 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 Larger valves. Smaller cocks

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

That pipes are carried through the bunkers Forward bilge suction How are they protected Wooden casings

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock New vessel Is the screw shaft tunnel watertight Yes.

Is it fitted with a watertight door Yes worked from Upper Eng. Rm. platform.

**BOILERS, &c.—** (Letter for record S) Total Heating Surface of Boilers 4297 Is forced draft fitted No

No. and Description of Boilers One Double ended Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs

Date of test 23.4.02 Can each boiler be worked separately Yes Area of fire grate in each boiler 123 3/4 " 2' No. and Description of safety valves to each boiler Two direct spring Area of each valve 4" dia 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 1' 7" Mean diameter of boilers 15' 6"

Length 18' 0" Material of shell plates Steel Thickness 1 9/16" Description of riveting: circum. seams Mid. trans long. seams Straps. Int riv  
ends double

Diameter of rivet holes in long. seams 1 9/16" Pitch of rivets 10 3/8 x 5 3/16 Lap of plates or width of butt straps 23 1/2 x 1 1/4" thick

Percentages of strength of longitudinal joint plate 88.2 Working pressure of shell by rules 220 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 2' 10 1/2" x 2' 6" x 1 1/4" No. and Description of Furnaces in each boiler Six Morrison's Material Steel Outside diameter 49 1/4"

Length of plain part top 21/32 Thickness of plates bottom 21/32 Description of longitudinal joint Welded No. of strengthening rings -

Working pressure of furnace by the rules 217 lbs Combustion chamber plates: Material Steel Thickness: Sides 23/32 Back - Top 23/32 Bottom 1 3/16

Pitch of stays to ditto: Sides 9" Back - Top 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 220 lbs

Material of stays Steel Diameter at smallest part 1 5/8" Area supported by each stay 81 " 2 Working pressure by rules 227 End plates in steam space: Material Steel Thickness 1 1/8" Pitch of stays 17 1/2" x 15" How are stays secured Double nuts loose washers Working pressure by rules 218 Material of stays Steel

Diameter at smallest part 2 7/8" Area supported by each stay 263 " 2 Working pressure by rules 230 Material of Front plates at bottom Steel

Thickness 7/8" Material of Lower back plate - Thickness - Greatest pitch of stays Approx Working pressure of plate by rules 200

Diameter of tubes 3 1/4" Pitch of tubes 4 3/8" x 4 3/4" Material of tube plates Steel Thickness: Front 1 1/16" Back 13/16" Mean pitch of stays 9 1/8"

Pitch across wide water spaces 14 1/4" Working pressures by rules 206 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8" x 1" two plates Length as per rule 3' 10 3/8" Distance apart 9" Number and pitch of Stays in each Four at 9"  
girders supported by 3" stays

Working pressure by rules 200 Superheater or Steam chest; how connected to boiler - Can the superheater be shut off and the boiler worked separately -

Diameter - Length - Thickness of shell plates - Material - Description of longitudinal joint - Diam. of rivet -

Pitch of rivets - Working pressure of shell by rules - Diameter of flue - Material of flue plates - Thickness -

Stiffened with rings - Distance between rings - Working pressure by rules - End plates: Thickness - How stayed -

Working pressure of end plates - Area of safety valves to superheater - Are they fitted with easing gear -

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**DONKEY BOILER**— Description *Horizontal multitubular. Two furnaces.*  
 Made at *Nagasaki* By whom made *Mitsui Bishi O.K. & Eng. Wks.* When made *1902* Where fixed *On deck.*  
 Working pressure *100* tested by hydraulic pressure to *200* <sup>date</sup> No. of Certificate *25/2/02* Fire grate area *20.6* Description of safety valves *2 Spring loaded.*  
 No. of safety valves *2* <sup>dia</sup> Area of each *2 1/4"* Pressure to which they are adjusted *100 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No.* Diameter of donkey boiler *8' 0"* Length *7' 6"* Material of shell plates *Steel* Thickness *5/8"*  
 Description of riveting long seams *Triple Lap.* Diameter of rivet holes *7/8"* Whether punched or drilled *Drilled* Pitch of rivets *3 1/4"*  
 Lap of plating *6 3/8"* Per centage of strength of joint Rivets *75.3* Thickness of shell <sup>end</sup> plates *11/16"* Radius of do. *18" x 14"*  
 Dia. of stays. *2" eff.* Diameter of furnace <sup>Top</sup> *2' 4 1/8"* <sup>Bottom</sup> *2' 4 1/8"* Length of furnace *11' 6"* Thickness of furnace plates *7/16"* Description of joint *Welded* Thickness of <sup>con. ch.</sup> furnace crown plates *1/2"* Stayed by *1 3/8" stays* Spaced *8 1/2" x 8"* Working pressure of shell by rules *118*  
 Working pressure of furnace by rules *116 lbs* Diameter of <sup>tube</sup> uptake *3"* Thickness of <sup>tube</sup> uptake plates *11/16"* Thickness of <sup>water tubes</sup> water tubes *9/16"* <sup>plates</sup> *4 1/2" x 3/4" plates* Spaced *9"* <sup>stays</sup> *2 stays.*

**SPARE GEAR.** State the articles supplied:— *Packing for all pistons & piston valves. 2 valve spindles. Two top end & two bottom end con. rod bolts & nuts. Two main bearing bolts & nuts. Set coupling bolts & nuts. Set feed & bilge pump valves. 1/20 Condenser tubes. Air pump rod & 1/2 set valves & seats. Safety valve spring for main, & one for donkey boiler. Boiler tubes. Fire bars. Assorted iron & tools.*  
 The foregoing is a correct description,  
*Y. Sugitani* Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *6<sup>th</sup> Aug 1901 to March 1902*  
 During erection on board vessel— *March 1902 to 19<sup>th</sup> June 1902*  
 Total No. of visits *Continuous attendance.*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
**ENGINES**—Length of stern bush *6' 0 1/2"* Diameter of crank shaft journals <sup>as per rule</sup> *11 3/4"* <sup>10.6</sup> Diameter of thrust shaft under collars *11 3/4"*  
**BOILERS**—Range of tensile strength *27-32* Are they welded or flanged *No* **DONKEY BOILERS**—No. *1* Range of tensile strength *27-32*  
 Is the approved plan of main boiler forwarded herewith *Yes* Is the approved plan of donkey boiler forwarded herewith *Yes*

*These engines & boilers have been constructed & fitted on board under special survey & the workmanship has been found good throughout. All parts subject to steam pressure have been tested to at least double the working pressure by water & found satisfactory. A speed of over 13 knots was maintained on trial for 20 miles continuous running, with light draught. The report on the electric lighting will be sent shortly.*

*The Machinery in my opinion is eligible for the notation + LMC 6.02 (in red) in the Register.*

*It is submitted that this vessel is eligible for THE RECORD + LMC 6.02 Elec. Light.*

*A. L. Jones*  
 1.8.02  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee.	£ 2	: -	:	When applied for.
Special	£ 50	: 17	:	23.6.02
Donkey Boiler Fee	£	:	:	When received.
Travelling Expenses (if any)	£	:	:	24.6.02

Committee's Minute  
 Assigned

*+ LMC 6.02*



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