

# REPORT ON MACHINERY.

Port of *Nagasaki*

Received at London Office *JUES. 5 APR 1904*

No. in Survey held at *Nagasaki* Date, first Survey *15<sup>th</sup> June 1903* Last Survey *24 February 1904.*

Reg. Book. on the *Steel S. S. Ceylon Maru* (Number of Visits *64*.)

Master *W. Townsend.* Built at *Nagasaki* By whom built *Mitsu Bishi D+E. Works* When built *1904.*

Engines made at *Nagasaki* By whom made *Mitsu Bishi D+E. Works.* when made *1904.*

Boilers made at *Nagasaki* By whom made *Mitsu Bishi D+E. Works.* when made *1904.*

Registered Horse Power *442.* Owners *Nippon Yusen Kaisha* Port belonging to *Tokio.*

Nom. Horse Power as per Section 28 *442.* Is Electric Light fitted *yes.*

**ENGINES, &c.**—Description of Engines *Triple Expansion.* No. of Cylinders *Three* No. of Cranks *3.*

Diameter of Cylinders *26 1/2" 43" 72"* Length of Stroke *48"* Revolutions per minute *85* Diameter of Screw shaft *as per rule 14.234* ✓  
*as fitted 13.28* Diameter of Crank shaft journals *14.25* Diameter of Crank pin *14.75* Size of Crank webs *23 1/2" x 9 1/4"*

Diameter of Tunnel shaft *as fitted 13.5* Diameter of Crank shaft journals *14.25* Diameter of Crank pin *14.75* Size of Crank webs *23 1/2" x 9 1/4"*

Diameter of screw *16-9"* Pitch of screw *17-3"* No. of blades *4* State whether moveable *yes* Total surface *86.0 sq. ft.*

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 *4 1/2"* Stroke *24"* Can one be overhauled while the other is at work *yes.*

No. of Donkey Engines *Four.* Sizes of Pumps *FEED. 7" x 6 x 9" DUPLEX* No. and size of Suctions connected to both Bilge and Donkey pumps  
*BALLAST 9 x 12 x 10" GENERAL 5 1/2 x 3 1/2 x 5" WEIRS. 10 1/2 x 8 x 18"* In Holds, &c. *In each hold one 3 1/2", and two at 2 3/4", to Bilge pumps, Ballast and General Donkey Pumps.*

In Engine Room *One 4", and three @ 2 3/4"*

No. of bilge injections *1* sizes *9 1/2"* Connected to condenser, or to circulating pump *C. PUMP.* Is a separate donkey suction fitted in Engine room & size *Two. 3 1/2" & 3 3/4"*

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 *Bilge.* How are they protected *Strong wood 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 *17. 2. 04.* Is the screw shaft tunnel watertight *yes. TESTED.*

Is it fitted with a watertight door *yes* worked from *upper deck.*

**BOILERS, &c.**— (Letter for record *S*) Total Heating Surface of Boilers *5948. sq. ft.* Is forced draft fitted *yes.*

No. and Description of Boilers *Three Scotch S.E.* Working Pressure *185.* Tested by hydraulic pressure to *370.*

Date of test *9. 12. 03* Can each boiler be worked separately *yes* Area of fire grate in each boiler *51. sq. ft.* No. and Description of safety valves to each boiler *Two Direct Spring.* Area of each valve *7.07 sq. in.* Pressure to which they are adjusted *189. lbs* Are they fitted with easing gear *yes* Smallest distance between bottoms or uptakes and bunkers or woodwork *9"* Mean diameter of boilers *13-3"*

Length *11-6"* Material of shell plates *Steel* Thickness *1 5/16"* Description of riveting: circum. seams *Double* long. seams *Double straps Triple riveted.*

Diameter of rivet holes in long. seams *1 3/8"* Pitch of rivets *9 3/8" & 4 1/16"* Lap of plates or width of butt straps *1-8 1/2"*

Per centages of strength of longitudinal joint *rivets 89.5 plate 85.3* Working pressure of shell by rules *214. lbs* Size of manhole in shell *16" x 12"*

Size of compensating ring *2-11 1/2" x 2-6 1/2"* No. and Description of Furnaces in each boiler *3. Morisons* Material *Steel* Outside diameter *41 1/4"*

Length of plain part *top 9" bottom 16"* Thickness of plates *9" bottom 16"* Description of longitudinal joint *Welded* No. of strengthening rings *✓*

Working pressure of furnace by the rules *214* Combustion chamber plates: Material *Steel* Thickness: Sides *5/8"* Back *5/8"* Top *5/8"* Bottom *3/4"*

Pitch of stays to ditto: Sides *8" x 8"* Back *8 3/8" x 7 1/2"* Top *9" x 6 3/4"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *210.*

Material of stays *Steel* Diameter at smallest part *1 1/2"* Area supported by each stay *64"* Working pressure by rules *216* End plates in steam space: Material *Steel* Thickness *1 1/8"* Pitch of stays *18 1/2"* How are stays secured *Double Nuts* Working pressure by rules *208.* Material of stays *Steel*

Diameter at smallest part *3 1/8"* Area supported by each stay *342.25* Working pressure by rules *237* Material of Front plates at bottom *Steel*

Thickness *3/4"* Material of Lower back plate *Steel* Thickness *5/8"* Greatest pitch of stays *1-1 1/4"* Working pressure of plate by rules *232.*

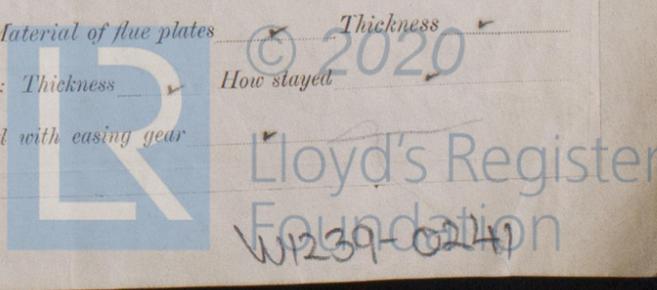
Diameter of tubes *2 1/2"* Pitch of tubes *3 7/8" x 3 5/8"* Material of tube plates *Steel* Thickness: Front *3/4"* Back *3/4"* Mean pitch of stays *7 1/2"*

Pitch across wide water spaces *1-1 3/8"* Working pressures by rules *220. lbs.* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *10" x 1 1/2"* Length as per rule *29"* Distance apart *9"* Number and pitch of Stays in each *3 @ 6 1/4"*

Working pressure by rules *248.* 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 holes *✓* Pitch of rivets *✓* Working pressure of shell by rules *✓* Diameter of flue *✓* Material of flue plates *✓* Thickness *✓*

If 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 *✓*



DONKEY BOILER— Description **NONE**

Made at By whom made: When made Where fixed  
Working pressure tested by hydraulic pressure to No. of Certificate Fire grate area Description of safety valves  
No. of safety valves Area of each Pressure to which they are adjusted If fitted with easing gear If steam from main boilers can enter the donkey boiler  
Diameter of donkey boiler Length Material of shell plates Thickness  
Description of riveting long. seams Diameter of rivet holes Whether punched or drilled Pitch of rivets  
Lap of plating Per centage of strength of joint Rivets Thickness of shell crown plates Radius of do. No. of Stays to do.  
Plates  
Dia. of stays. Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint  
Thickness of furnace crown plates Stayed by Working pressure of shell by rules  
Working pressure of furnace by rules Diameter of uptake Thickness of uptake plates Thickness of water tubes

SPARE GEAR. State the articles supplied:— As per rule, and in addition, one length crank shaft, one top end brass, one bottom end brass, one main bearing bush. H.P. & I.P. Valve spindles &c. One propeller shaft with liners &c. One propeller boss, two blades, one piston rod &c.  
The foregoing is a correct description,  
Manufacturer. **A. Mizutani** <sup>S. Manager</sup>  
**Mitsui Bishi Dockyards & Engine works**

Dates During progress of work in shops— 1903. June, 15. Oct. 22, 26, 31. Nov. 6, 11, 12, 13, 16, 17, 19, 24, 27. DEC. 2, 9, 11, 14, 16, 21, 23.  
of Survey while building During erection on board vessel — Dec 1903, 24, 25, 28, 29. Jan 1904, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 25, 26, 27, 28, 30.  
Total No. of visits **64**. Feb. 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 22, 23, 24.

General Remarks (State quality of workmanship, opinions as to class, &c. **These Engines and Boilers—**)

ENGINES—Length of stern bush **5-9"** Diameter of crank shaft journals <sup>as per rule</sup> **13.94"** Diameter of thrust shaft under collars **14 1/4"**  
<sup>as fitted</sup> **14.25**  
BOILERS—Range of tensile strength <sup>TONS.</sup> **27-32** Are they welded or flanged **NO** DONKEY BOILERS—No.  Range of tensile strength   
Is the approved plan of main boiler forwarded herewith **yes** Is the approved plan of donkey boiler forwarded herewith

have been specially surveyed during construction, the workmanship is of good quality, shafting and rods examined while being machined and found apparently sound. Main steam and feed pipes tested by hydraulic pressure to 370 lbs per sq. The Engines and Boilers are satisfactorily fitted in vessel and have been seen working under full pressure of steam, they are now in good order and safe working condition, and eligible in my opinion to be noted **L.M.C. 2.04** in the Register Book.

Propeller shaft is fitted with continuous liner.  
Average mean speed on trial; 14.0 knots.

It is submitted that this vessel is eligible for **THE RECORD** **L.M.C. 2.04** **F.D. ELEC. LIGHT.**

**Sms**  
**6.4.04**  
**A.C. Heron**  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee. £ **3 : 0 :** When applied for.  
Special £ **63 : 3 :** **29. 2. 1904.**  
Donkey Boiler Fee **in yen** £ **658.07.** When received.  
Travelling Expenses (if any) £ **1. 3** **19.04.**

Committee's Minute **WED, 6 APR 1904**  
Assigned **+ 658.07**

Certificate (if required) to be sent to Nagasaki.  
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

MACHINERY CERTIFICATE WRITTEN.

