

Port of **NAGASAKI.**

Received at London Office.

MON. JUL. 12. 1915

No. in Survey held at

NAGASAKI.Date, first Survey 23rd May 1914 Last Survey 10th June 1915

Reg. Book.

on the *Twin geared turbine s.s. Joyama Maru*

(Number of Visits 155)

Gross 7386

Net 4592

Master *M. Machida* Built at *Nagasaki*By whom built *Mitsui Bishi Dockyard & Engine Works* When built 1913Engines made at *Nagasaki*By whom made *Mitsui Bishi Dockyard & Engine Works* when made 1913Boilers made at *Nagasaki*By whom made *Mitsui Bishi Dockyard & Engine Works* when made 1913Registered Horse Power *922*Owners *Nippon Yusen Kaisha*Port belonging to *Tokio*Nom. Horse Power as per Section 28 *922*Is Refrigerating Machinery fitted for cargo purposes *No*Is Electric Light fitted *Yes*ENGINES, &c.—Description of Engines *Parsons' Geared Turbines, 2 sets*No. of Cylinders *4*No. of Cranks *4*Dia. of Cylinders *See next page*Length of Stroke *11.57"*Revs. per minute *116.13*Dia. of Screw shaft *as per rule 12.38*as fitted *13.5"*Material of screw shaft *Forged steel*Is 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

in 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' 3"*Dia. of Tunnel shaft *as per rule 11.57"*as fitted *12.0"*Dia. of Crank shaft journals *as per rule 4.2"*as fitted *5.2"*Dia. of Crank pin *as per rule 4.2"*

Size of Crank webs

Dia. of thrust shaft under

collars *12.24"*Dia. of screw *14.6"*Pitch of Screw *14.0"*No. of Blades *4*State whether moveable *Yes*Total surface *65.2 sq. ft. each*No. of Feed pumps *3 sets*Diameter of ditto *12"*Stroke *24"*Can one be overhauled while the other is at work *Yes*No. of Bilge pumps *2 sets*Diameter of ditto *4.2"*Stroke *9"*Can one be overhauled while the other is at work *Yes*No. of Donkey Engines *5 sets*

Simplex

Sizes of Pumps *3 @ 6" x 7" x 5", 2 @ 7.5" x 9" x 15"*

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *2 @ 3.5"*In Holds, &c. *No. 1 Hold 2 @ 3.5", No. 2 Hold 2 @ 4", No. 3 Hold**2 @ 3.5", No. 4 & 5 Hold 2 @ 4"*Suction tank *2 @ 3.5" x 2 @ 5.5"*Tunnel well *1 @ 3"*Shaft tunnel *1 @ 3"*No. of Bilge Injections *2 sizes*

7"

Connected to condenser, or to circulating pump *Yes*Is a separate Donkey Suction fitted in Engine room & size *Yes 5.5"*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 *Valves & Cocks*Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *Yes*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 pipes*How are they protected *Wood casing covered with sheet iron*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*Dates of examination of completion of fitting of Sea Connections *19.3.15*of Stern Tube *16.3.15*Screw shaft and Propeller *10.5.15*Is the Screw Shaft Tunnel watertight *Yes*Is it fitted with a watertight door *Yes*worked from *Upper deck*BOILERS, &c.—(Letter for record *S*)Manufacturers of Steel *David Colville & Sons Ltd.*Total Heating Surface of Boilers *9507.32*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 *6.3.15*No. of Certificate *61*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 *Two spring loaded*Area of each valve *9.62 sq. in.*Pressure to which they are adjusted *203 lbs.*Are they fitted with easing gear *Yes*Smallest distance between boilers or uptakes and bunkers or woodwork *18"*Mean dia. of boilers *14.3"*Length *11.6"*Thickens *1 7/16"*Range of tensile strength *28.5-32 tons*Are the shell plates welded or flanged *No*Descrip. of riveting: cir. seams *riveted lap*long. seams *double butt strap*Diameter of rivet holes in long. seams *1 1/2"*Pitch of rivets *10" x 5"*Lap of plates or width of butt straps *22"*Per centages of strength of longitudinal joint *91.5%*Working pressure of shell by rules *229.5 lbs.*Size of compensating ring *36" x 31" x 1 7/16"*No. and Description of Furnaces in each boiler *3 divisions*Material *Steel*Outside diameter *45 3/4"*Length of plain part *top 5.5"*Thickness of plates *bottom 8"*Description of longitudinal joint *Welded*No. of strengthening rings *15*Working pressure of furnace by the rules *229.5 lbs.*Combustion chamber plates: Material *Steel*Pitch of stays to ditto: Sides *10 1/2" x 7 1/2"*Back *8 1/2" x 8 1/2"*Top *9" x 8 1/2"*If stays are fitted with nuts or riveted heads *Nuts*Working pressure by rules *245 lbs.*

End plates in steam space:

Material of stays *Steel*Diameter at smallest part *1 3/4"*Area supported by each stay *73.4 sq. in.*Working pressure by rules *216 lbs.*Material *Steel*Thickness *1 7/32"*Pitch of stays *19 1/2" x 16 1/2"*How are stays secured *Double nuts*Working pressure by rules *216 lbs.*Material of stays *Steel*Diameter at smallest part *3"*Area supported by each stay *321.7 sq. in.*Working pressure by rules *229 lbs.*Material of Front plates at bottom *Steel*Thickens *3/4"*Material of Lower back plate *Steel*Thickness *1 1/16"*Greatest pitch of stays *9" x 14 1/2"*Working pressure of plate by rules *209 lbs.*Diameter of tubes *3"*Pitch of tubes *4 5/8" x 4 1/8"*Material of tube plates *Steel*Thickness: Front *3/4"*Back *1 1/16"*Pitch across wide water spaces *12" x 13 1/2"*Working pressures by rules *220 lbs.*Girders to Chamber tops: Material *Steel*

Depth and

thickness of girder at centre *10" x 3 1/2"*Length as per rule *29 1/2"*Distance apart *8 1/2"*Number and pitch of stays in each *2 @ 9"*Working pressure by rules *325 lbs.*Superheater or Steam chest; how connected to boiler *Yes*

Can the superheater be shut off and the boiler worked

separately *Yes*Diameter *Yes*Length *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*If stiffened with rings *Yes*Distance between rings *Yes*Working pressure by rules *Yes*End plates: Thickness *Yes*How stayed *Yes*Working pressure of end plates *Yes*Area of safety valves to superheater *Yes*Are they fitted with easing gear *Yes*

007707-007713-0201

Lloyd's Register Foundation

VERTICAL DONKEY BOILER— Manufacturers of Steel

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

SPARE GEAR. State the articles supplied:— as per Rule, and in addition one propeller shaft, 4 propeller bolts, one complete set of main bearing brasses for one set of turbines and gear wheels, one H.P. pinion shaft, one pinion shaft, 60 condenser tubes, 12 boiler tubes, 4 safety valve springs, one L.P. turbine relief valve spring and spare parts for auxiliary engines

The foregoing is a correct description,
mitsu bishi DOCKYARD & ENGINE WORKS
 General Manager, Manufacturer.

1914 May 23, 29 June 2, 5, 10, 11, 13, 15, 19, 23, 24, 27, July 4, 9, 10, 11, 13, 20, 21, 25, 27, Aug. 3, 4, 5, 6, 8, 11, 12, 13, 14, 20, 21, 22, 26, 27, 29, 30, Sept. 1, 7, 10, 13, 14, 15, 16, 19, 23, Nov. 2, 3, 4, 5, 6, 10, 11, 12, 16, 18, 19, 25, 26, 28, 30, Dec. 1, 4, 5, 8, 9, 11, 12, 19, 23, 24, 26, 28, 29, 1915 Jan. 4, 5, 6, 9, 11, 15, 16, 18, 19, 21, 22, 23, 30, Feb. 3, 4, 8, 12, 16, 17, 18, 24, 27, March 1, 4, 6, 10, 11, 12, 13, 15, 16, 22, 23, 24, 25, 27, 29, 31, April 2, 5, 6, 9, 12, 13, 14, 16, 19, 20, 23, 26, 27, 30, May 1, 3, 4, 5, 6, 8, 10, 11, 15, 22, 24, June 10.

Dates of Survey while building
 During progress of work in shops—
 During erection on board vessel—
 Total No. of visits 153
 S.I.P. ahead Cyl. 30. 11. 14 P.L.P. Astern Cyl. 14. 11. 14
 S.I.P. Astern Cyl. 14. 11. 14 S.H.P. Cyl. 19. 9. 14
 P.L.P. ahead Cyl. 30. 11. 14 P.H.P. Cyl. 21. 7. 14
 Dates of Examination of principal parts—Cylinders, turbine casings, slides, rotors, donkey, spindle for gear wheels, pistons, rods
 Connecting rods ✓ Crank shaft ✓ Thrust shaft 3. 2. 15 Tunnel shafts 26. 11. 14 19. 1. 15 30. 1. 15 22. 3. 15 Screw shaft 10. 3. 15 Propeller 1. 5. 15
 Stern tube 13. 3. 15 Steam pipes tested 3. 5. 15 Engine and boiler seatings 30. 3. 15 Engines holding down bolts 10. 5. 15
 Completion of pumping arrangements 15. 5. 15 Boilers fixed 13. 4. 15 Engines tried under steam 22. 5. 15
 Main boiler safety valves adjusted 15. 5. 15 Thickness of adjusting washers No washers, brass jamb nuts.
 Material of Crank shaft ✓ Identification Mark on Do. ✓ Material of Thrust shaft Forged Steel Identification Mark on Do. No. 109 A.S.
 Material of Tunnel shafts Forged Steel Identification Marks on Do. A.S.W. Material of Screw shafts Forged Steel Identification Marks on Do. No. 10 A.S.
 Material of Steam Pipes Lap welded wrought iron and solid drawn copper Test pressure 600 lbs. per sq. in.

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 materials and workmanship. They have been securely fitted on board and have been satisfactorily tried under full steam. All rotor casings have been subjected to the prescribed hydraulic tests, and found sound and good.
 The Machinery of this vessel is eligible, in my opinion, for the record of **LMC** in the Register Book.

Mean Speed of 6 Runs on Trial when Half Loaded = 14.5 Knots.

H.P. Rotors 1' 2 1/2" to 1' 11" Casings 1' 3 15/16" to 2' 2 1/4" It is submitted that this vessel is eligible for THE RECORD + LMC
 L.P. do. 2' 6" do. 2' 9 1/4" to 3' 6"
 Astern do. 1' 11" do. 2' 0 1/4" to 2' 4" 4 Steam Turbines geared to 2 screw shafts.

The astern turbines are incorporated in the L.P. turbines

The amount of Entry Fee.. £ 3 : 0 : 0 When applied for, 15th June 1915
 Special £ 99 : 3 : 7
 Donkey Boiler Fee £ : : :
 Travelling Expenses (if any) £ : : : When received, 16th June 1915

A.S. Williamson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute TUE. JUL. 13. 1915

Assigned **LMC 6.15**

MACHINERY CERTIFICATE
 10111