

## REPORT ON MACHINERY.

No. 730.

MUN. 8 MAY 1911

Port of *Nagasaki*

Received at London Office

19

No. in Survey held at *Nagasaki* Date, first Survey *Dec. 9. 1909* Last Survey *April 15. 1911.*

Reg. Book.

21<sup>st</sup> 5. on the *Twin Screw Steamer Canada Maru* (Number of Visits *146.*)Master *K. Hori* Built at *Nagasaki* By whom built *Mitsui Bishi S. & E. Works.* Tons { Gross *6063.* Net *3759.* When built *1911.*Engines made at *Nagasaki* By whom made *Mitsui Bishi S. & E. Works.* when made *1911.*Boilers made at *Nagasaki* By whom made *Mitsui Bishi S. & E. Works.* when made *1911.*Registered Horse Power *578* Owners *Osaka Shosen Kaisha* Port belonging to *Nagasaki.*Nom. Horse Power as per Section 28 *578.* 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 *Six* No. of Cranks *Six*Dia. of Cylinders *19 1/4. 32. 54* Length of Stroke *48* Revs. per minute *85* Dia. of Screw shaft as per rule *12* Material of screw shaft *Steel*Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No.* Is the after end of the liner made water tightin 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 partbetween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *Yes.* If twoliners are fitted, is the shaft lapped or protected between the liners *Yes lapped at ends* Length of stern bush *5-3 1/2*Dia. of Tunnel shaft as per rule *11-2* Dia. of Crank shaft journals as per rule *11-7 1/2* Dia. of Crank pin *12 1/2* Size of Crank webs *16 x 8* Dia. of thrust shaft undercollars *12* Dia. of screw *14-9* Pitch of Screw *17-9* No. of Blades *4* State whether moveable *Yes* Total surface *68-4* sq. ft.No. of Feed pumps *4* Diameter of ditto *3 3/4* Stroke *24* Can one be overhauled while the other is at work *Yes.*No. of Bilge pumps *4* Diameter of ditto *3 3/4* Stroke *24* Can one be overhauled while the other is at work *Yes.*No. of Donkey Engines *Three* Sizes of Pumps *See next page.* No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room *Three at 3 1/2* Boiler Room *Two at 3 1/2* In Holds, &c. *Two at 3 1/2 in each hold.*One *3* in each Tunnel and one *3* in Tunnel well.No. of Bilge Injections *2* sizes *7* Connected to condenser, or to circulating pump *C. P.* Is a separate Donkey Suction fitted in Engine room & size *Yes, 7.*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 *Yes*Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Both valves and 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*What pipes are carried through the bunkers *Exhaust. Wmch. E. Heaters + w. c.* 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.*Dates of examination of completion of fitting of Sea Connections *27. 11. 10.* of Stern Tube *26. 11. 10* Screw shaft and Propeller *6. 1. 11.*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 *Beardmore, Steel Co. Scotland, Lanarkshire*Total Heating Surface of Boilers *8344* sq. ft. Is Forced Draft fitted *Yes* No. and Description of Boilers *Three Scotch.*Working Pressure *200 lbs.* Tested by hydraulic pressure to *400 lbs.* Date of test *28. 12. 10* No. of Certificate *48.*Can each boiler be worked separately *Yes* Area of fire grate in each boiler *66* sq. ft. No. and Description of Safety Valves toeach boiler *20 3 1/2* direct spring Area of each valve *9.62* 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 *1-6* Mean dia. of boilers *15-6* Length *11-9* Material of shell plates *Steel*Thickness *1 1/32* Range of tensile strength *28-32* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *28. Lap.*long. seams *3 R. 2 R. 2 R.* Diameter of rivet holes in long. seams *1 1/2* Pitch of rivets *10+5* Lap of plates or width of butt straps *1-10*Per centages of strength of longitudinal joint rivets *90* Working pressure of shell by rules *217 lbs.* Size of manhole in shell *16 x 12*Size of compensating ring *36 1/2 x 32 1/2 x 1 1/2* No. and Description of Furnaces in each boiler *3. L.F. Bull* Material *Steel* Outside diameter *46 5/16*Length of plain part top *21* Thickness of plates crown *32* Description of longitudinal joint *Welded* No. of strengthening rings *Yes*Working pressure of furnace by the rules *234* Combustion chamber plates: Material *Steel* Thickness: Sides *11/16* Back *11/16* Top *11/16* Bottom *7/8*Pitch of stays to ditto: Sides *9 x 8 3/4* Back *9 x 8 1/2* Top *9 x 8 1/2* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *212.*Material of stays *Steel* Diameter at smallest part *1 5/8* Area supported by each stay *78.75* Working pressure by rules *232* End plates in steam space:Material *Steel* Thickness *1 9/32* Pitch of stays *20 x 18 1/2* How are stays secured *2 N + WASHERS* Working pressure by rules *202* Material of stays *Steel*Diameter at smallest part *3 1/4* Area supported by each stay *370* Working pressure by rules *229* Material of Front plates at bottom *Steel*Thickness *3/4* Material of Lower back plate *Steel* Thickness *27/32* Greatest pitch of stays *14 1/2 x 9* Working pressure of plate by rules *270*Diameter of tubes *3 E x* Pitch of tubes *4 3/8 x 4 1/8* Material of tube plates *Steel* Thickness: Front *3/4* Back *3/4* Mean pitch of stays *8 1/2*Pitch across wide water spaces *13 1/4* Working pressures by rules *269* Girders to Chamber tops: Material *Steel* Depth andthickness of girder at centre *12 x 1 3/4* Length as per rule *34 1/16* Distance apart *9* Number and pitch of stays in each *3 at 8 1/2*Working pressure by rules *300* Superheater or Steam chest; how connected to boiler *Yes* Can the superheater be shut off and the boiler workedseparately *Yes* Diameter *Yes* Length *Yes* Thickness of shell plates *Yes* Material *Yes* Description of longitudinal joint *Yes* Diam. of rivetholes *Yes* Pitch of rivets *Yes* Working pressure of shell by rules *Yes* Diameter of flue *Yes* Material of flue plates *Yes* Thickness *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*

008168-008176-0078



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 Safety
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 length crank shaft, one Propeller shaft, one Piston Rod.  
Two Eccentric Rods, One Valve Spindle. Two Eccentric Straps, gauge for  
-Crank shaft &c &c!

The foregoing is a correct description,  
MITSUBISHI DOCKYARD & ENGINE WORKS,  
Yokohama, Japan. Manufacturer.

Dates of Survey while building	During progress of work in shops—	General Manager. Jan 1910, 2. Feb. 3. March 5. April 10. May 15. June 12. July 16.
	During erection on board vessel—	Aug. 8. Sep. 4. Oct. 14. Nov. 7. Dec. 9. Jan 1911. 2. Total before launch. 109.
	Total No. of visits	January 1911, 7. February 2. 3. 6. 9. 10. 13. 15. 16. 18. 20. 22. 23. 24. 28. March 2. 3.
		April 4. 7. 11. 14. 15.
		March 4. 9. 10. 16. 17. 18. 20. 28. 31. (37)

Is the approved plan of main boiler forwarded herewith ☒ yes

Total visits 146,

Dates of Examination of principal parts—	Cylinders 12. 1. 11	Slides 6. 2. 11	Covers 3. 2. 11	Pistons 2. 2. 11	Rods 18. 1. 11
Connecting rods	18. 1. 11	Crank shaft 7. 1. 11	Thrust shaft 7. 1. 11	Tunnel shafts 3. 2. 11	Screw shafts 6. 1. 11
Propellers	4. 3. 11				
Stern tube	9. 1. 11	Steam pipes tested 1. 11. 1910	Engine and boiler seatings 26. 1. 11	Engines holding down bolts 24. 2. 11	
Completion of pumping arrangements	27. 3. 11	Boilers fixed 23. 2. 11	Engines tried under steam 1. 4. 11		
Main boiler safety valves adjusted	28. 3. 11	Thickness of adjusting washers	Jamb nuts no washers.		
Material of Crank shaft	Steel	Identification Mark on Do. N: 48	Material of Thrust shaft	Steel	Identification Mark on Do. N: 48
Material of Tunnel shafts	Steel	Identification Marks on Do. N: 48	Material of Screw shafts	Steel	Identification Marks on Do. N: 51
Material of Steam Pipes	Iron lap welded.	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, and are in accordance with the Rules. The Workmanship, and the materials used are good. They have been securely and satisfactorily fitted on board, and have been seen working well under a full head of steam, and are now eligible in my opinion to be recorded L.M.C. 4. 11. in Register Book. Engines fitted amidships. Mean Speed on Trials with half deadweight 14.85 Knots. Weirs Feed Pumps. Duplex. 10 1/2 x 8 x 21. Ballast Pump. Duplex 9 x 12 x 10. General Donkey Pump Duplex 12 x 8 x 10.

It is submitted that  
this vessel is eligible for  
THE RECORD, + L.M.C. 4. 11.

The amount of Entry Fee..	£ 3 : 0 : 0	When applied for.	
Special .. .. .	£ 73 : 10 : 0		
Donkey Boiler Fee .. .. .	£ : : :	When received,	
Travelling Expenses (if any) £	: : :		

Committee's Minute TUE. 16 MAY 1911

Assigned

MACHINERY CERTIFICATE  
WRITTEN

F.D.

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