

Received at London Office

Date of writing Report 13. 7 1908 When handed in at Local Office 14. 7 1908 Port of *Nagasaki* JUL 4 AUG 1908
 No. in Survey held at *Nagasaki* Date, First Survey 22. 2. 1907 Last Survey 13. 7 1908.
 Reg. Book. 37 on the *Steel Twin Screw "Kamo Maru"* (Number of Visits 166)
 Master *F. L. Sommer* Built at *Nagasaki* By whom built *Mitsui Bishi S. & E. Works* When built 1908
 Engines made at *Nagasaki* By whom made *Mitsui Bishi S. & E. Works* when made 1908
 Boilers made at *Nagasaki* By whom made *Mitsui Bishi S. & E. Works* when made 1908
 Registered Horse Power 973 Owners *Nippon Yusen Kaisha* Port belonging to *Tokio*.
 Nom. Horse Power as per Section 28 973 Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*.

ENGINES, &c.—Description of Engines *Triple Expansion, 2 sets* No. of Cylinders *Six* No. of Cranks *Six*
 Dia. of Cylinders *25", 41½", 69"* Length of Stroke *48"* Revs. per minute *80* Dia. of Screw shaft *14.25"* Material of *Lockfast*
 as fitted *15.25"* screw shaft *Iron*.
 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 *6'-0"*
 Dia. of Tunnel shaft as per rule *13.18"* Dia. of Crank shaft journals as per rule *13.84"* Dia. of Crank pin *14.75"* Size of Crank webs *22x9½"* Dia. of thrust shaft under
 collars *14.25"* Dia. of screw *16-6"* Pitch of Screw *18-9"* No. of Blades *4* State whether moveable *Yes* Total surface *86.33 sq. ft.*
 No. of Feed pumps *4* Diameter of ditto *4½"* Stroke *24"* Can one be overhauled while the other is at work *Yes*.
 No. of Bilge pumps *4* Diameter of ditto *4½"* Stroke *24"* Can one be overhauled while the other is at work *Yes*.
 No. of Donkey Engines *Six* Sizes of Pumps *10x13½x10½"* Ballast *7x6x9"* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *3 @ 3½"* in Boiler Room *2 @ 3½"* In Holds, &c. *2 @ 3½"* in each hold.
One 3" in each tunnel and one 3" in tunnel well.
 No. of Bilge Injections *2* sizes *1½"* Connected to condenser, or to circulating pump *C. P.* Is a separate Donkey Suction fitted in Engine room & size *8x4½"*
 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 valves + 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 *Bilge, exhaust, + soil* 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 *11. 5. 08* of Stern Tube *10. 5. 08* Screw shaft and Propeller *12. 5. 08*
 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 *Colvilles, Steel Co. of Scotland. Beardmore's*
Lanarkshire Steel Co.; Leeds Forge; Shilling S. & C. &c.
 Total Heating Surface of Boilers *14276* Is Forced Draft fitted *Yes* No. and Description of Boilers *Six Scotch. S. E.*
 Working Pressure *200 lbs* Tested by hydraulic pressure to *400 lbs* Date of test *25. 11. 07* No. of Certificate *27*.
 Can each boiler be worked separately *Yes* Area of fire grate in each boiler *56.35 sq. ft.* No. and Description of Safety Valves to
 each boiler *2 @ 3½" direct spring* Area of each valve *9.62 sq. in.* 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 *16"* Mean dia. of boilers *14-3"* Length *11-6"* Material of shell plates *Steel*
 Thickness *1½"* Range of tensile strength *28-32* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *2R lap*.
 long. seams *3R, 2 straps* Diameter of rivet holes in long. seams *1½"* Pitch of rivets *10-5"* Lap of plates or width of butt straps *22"*
 Per centages of strength of longitudinal joint rivets *89.1%* plate *85.1%* Working pressure of shell by rules *234 lbs* Size of manhole in shell *16" x 12"*
 Size of compensating ring *36x31x1½"* No. and Description of Furnaces in each boiler *3. LF. BULB.* Material *Steel* Outside diameter *41½"*
 Length of plain part top *5"* Thickness of plates crown *5"* bottom *8"* Description of longitudinal joint *Welded* No. of strengthening rings *NONE*
 Working pressure of furnace by the rules *241* Combustion chamber plates: Material *Steel* Thickness: Sides *16"* Back *16"* Top *16"* Bottom *16"*
 Pitch of stays to ditto: Sides *10½x7"* Back *8½x8½"* Top *9x8½"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *218*
 Material of stays *Steel* Diameter at smallest part *1½"* Area supported by each stay *74.3 sq. in.* Working pressure by rules *245* End plates in steam space:
 Material *Steel* Thickness *1½"* Pitch of stays *19½x16½"* How are stays secured *2x4x6x8"* Working pressure by rules *219* Material of stays *Steel*
 Diameter at smallest part *3½"* Area supported by each stay *318 sq. in.* Working pressure by rules *250* Material of Front plates at bottom *Steel*
 Thickness *3"* Material of Lower back plate *Steel* Thickness *3"* Greatest pitch of stays *12x10"* Working pressure of plate by rules *250*
 Diameter of tubes *3 Ex* Pitch of tubes *48x48"* Material of tube plates *Steel* Thickness: Front *3"* Back *3"* Mean pitch of stays *8½"*
 Pitch across wide water spaces *1-12"* Working pressures by rules *250 lbs* Girders to Chamber tops: Material *Steel* Depth and
 thickness of girder at centre *10x1¼"* Length as per rule *30"* Distance apart *8½"* Number and pitch of stays in each *2 @ 9"*
 Working pressure by rules *300 lbs* Superheater or Steam chest; how connected to boiler *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* 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*

007981-007487-0072

VERTICAL DONKEY BOILER—

Manufacturers of Steel

NOT ANY.

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: two propeller shafts, two right and two left hand bronze propeller blades; 24 slides with nuts for propeller blades; One length crank shaft interchangeable. Two stern bushes complete. One piston Rod, one slide Valve Rod &c.

The foregoing is a correct description,

S. Maruya, General Manager
Shikoku Kisen Kaisha, Ltd., Nagasaki Manufacturer.

Dates of Survey while building	During progress of work in shops - -	Continuous from 22 nd Feb 1907 to 24 th Dec 1907. 91 VISITS.
	During erection on board vessel - -	Continuous from 24 th Dec 1907 to 13 th July 1908. 75 VISITS.
	Total No. of visits	166 Visits

Is the approved plan of main boiler forwarded herewith *yes.*

" " " donkey " " " *yes.*

Dates of Examination of principal parts—Cylinders 7. 10. 07 Slides 11. 11. 07 Covers 11. 11. 07 Pistons 6. 12. 07 Rods 4. 6. 07
Connecting rods 20. 8. 07 Crank shaft 4. 07 Thrust shaft 4. 07 Tunnel shafts 4. 07 Screw shaft 5. 11. 07 Propeller 11. 07
Stern tube 7. 11. 07 Steam pipes tested 16. 3. 08 Engine and boiler seatings 23. 10. 07 Engines holding down bolts 15. 3. 08
Completion of pumping arrangements 13. 4. 08 Boilers fixed 25. 4. 08 Engines tried under steam 10. 13. 16 June 08.
Main boiler safety valves adjusted 3. 6. 08 Thickness of adjusting washers *No washers, brass jamb nuts.*
Material of Crank shaft *Steel* Identification Mark on Do. *LLOYDS N° 27 AGH. 4. 07* Material of Thrust shaft *Steel* Identification Mark on Do. *LLOYDS N° 27 AGH. 4. 07*
Material of Tunnel shafts *Steel* Identification Marks on Do. " " Material of Screw shafts *LOCKFAST IRON* Identification Marks on Do. *LLOYDS 207. 208 12. 4. 07 A.T.T.*
Material of Steam Pipes *Wrought iron lap weld + Copper*. Test pressure *600 + 400 Respectively*

General Remarks (State quality of workmanship, opinions as to class, &c. *These Engines and Boilers*)
Have been constructed under Special Survey, and in accordance with the Rules. They are of good materials and workmanship, and are securely and satisfactorily fixed on board.
They have been seen working well under a full head of steam, and are now eligible in my opinion for notation L.M.C. 6. 08. in Register Book.
Mean Speed on Trials, light ship 16.4 Knots.
This vessel was launched, 24. 12. 07.

It is submitted that
this vessel is eligible for
THE RECORD + L.M.C. 7. 08.

Electric light F.D.

The amount of Entry Fee .. £3.0.0.	When applied for,
Special .. £103.00	10. 7. 1908
Donkey Boiler Fee .. £	When received,
Travelling Expenses (if any) £	11. 7. 1908

Committee's Minute *11 AUG 1908*

Assigned *Thine 7. 08*

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

MACHINERY CERTIFICATE
WRITTEN 13/8/08



Certificate (if required) to be sent to Nagasaki

(The Surveyors are requested not to write on or below the space for Committee's Minute.)