

REPORT ON MACHINERY.

No. 1005
WED. 13 OCT. 1915

Port of **NAGASAKI.**

Received at London Office

No. in Survey held at **NAGASAKI.** Date, first Survey **11th July 1914** Last Survey **11th Sept. 1915.**
 Reg. Book. on the **Twin s.s. "Manila Maru"** (Number of Visits **158**) Tons { Gross **9506**
 Net **6032**
 Master **N. Kobayashi** Built at **Nagasaki** By whom built **Mitsui Bishi Dockyard & Engine Works** When built **1915**
 Engines made at **Nagasaki** By whom made **Mitsui Bishi Dockyard & Engine Works** when made **1915**
 Boilers made at **Nagasaki** By whom made **Do.** when made **1915**
 Registered Horse Power **1013** Owners **Osaka Shosen Kaisha** Port belonging to **Osaka**
 Nom. Horse Power as per Section 28 **1013** Is Refrigerating Machinery fitted for cargo purposes **Yes** Is Electric Light fitted **Yes**

ENGINES, &c.—Description of Engines **Twin screw Triple expansion** No. of Cylinders **6** No. of Cranks **6**
 Dia. of Cylinders **26 1/2" 14 1/2" & 7 1/2"** Length of Stroke **48"** Revs. per minute **85.3** Dia. of Screw shaft **15 1/2"** Material of screw shaft **Steel**
 the screw shaft fitted with a continuous liner the whole length of the stern tube **No liner fitted** Is the after end of the liner made water tight
 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' 6 1/8"**
 Dia. of Tunnel shaft **13 7/4"** Dia. of Crank shaft journals **14 1/2"** Dia. of Crank pin **15"** Size of Crank webs **22 1/2" x 9 1/2"** Dia. of thrust shaft under
 bars **14 3/4"** Dia. of screw **17 1/9"** Pitch of Screw **20:0** No. of Blades **4** State whether moveable **Yes** Total surface **77.8 sq. ft. each**
 No. of Feed pumps **3** Diameter of ditto **13 1/2"** Stroke **24"** Can one be overhauled while the other is at work **Yes**
 No. of Bilge pumps **4** Diameter of ditto **5"** Stroke **24"** Can one be overhauled while the other is at work **Yes**
 No. of Donkey Engines **3** Sizes of Pumps **General service 12" x 8" x 10"** No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room **3 @ 3 1/2"** In Holds, &c. No. 1 hold **2 @ 3 1/2"** No. 2 hold **2 @ 3 1/2"** No. 3 hold **1 @ 3 1/2"**
 No. of Bilge Injections **2** sizes **10"** Connected to condenser, or to circulating pump **Yes** Is a separate Donkey Suction fitted in Engine room & size **6"**
 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**
 How are they protected **Wood box with steel plate cover.**
 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 **28th May 1915** of Stern Tube **25th May 1915** Screw shaft and Propeller **25th July 1915**
 Is the Screw Shaft Tunnel watertight **Yes** Is it fitted with a watertight door **Yes** worked from **Bridge deck**

BOILERS, &c.—(Letter for record S) Manufacturers of Steel **David Colville & Sons Ltd.**
 Total Heating Surface of Boilers **13732 sq. ft.** Is Forced Draft fitted **Yes** No. and Description of Boilers **5 Single ended Scotch.**
 Working Pressure **200 lbs.** Tested by hydraulic pressure to **400 lbs.** Date of test **21st May 1915** No. of Certificate **No. 62 for No. 1, 2, & 3; No. 63 for No. 4 & 5**
 Can each boiler be worked separately **Yes** Area of fire grate in each boiler **66.12 sq. ft.** No. and Description of Safety Valves to
 each boiler **2 Spring loaded** 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 3/4"** Mean dia. of boilers **15' 0"** Length **12' 0"** Material of shell plates **Steel**
 Thickness **1 7/16"** Range of tensile strength **28 to 32 tons** Are the shell plates welded or flanged **No.** Descrip. of riveting: cir. seams **Double lap**
 g. seams **2 straps** Diameter of rivet holes in long. seams **1 1/2"** Pitch of rivets **10" & 5"** Lap of plates or width of butt straps **22"**
 Percentages of strength of longitudinal joint rivets **91.4** Working pressure of shell by rules **218 lbs.** Size of manhole in shell **16" x 12"**
 Descrip. of riveting: **3 Morrison's Suspension type** Material **Steel** Outside diameter **4' 0 1/2"**
 Length of plain part top **2 1/2"** Thickness of plates crown **3 1/2"** Description of longitudinal joint **Welded** No. of strengthening rings **1**
 Working pressure of furnace by the rules **219 lbs.** Combustion chamber plates: Material **Steel** Thickness: Sides **1 1/16"** Back **1 1/16"** Top **1 1/16"** Bottom **1 5/16"**
 Thickness of stays to ditto: Sides **9 1/2" x 7 1/2"** Back **9" x 8 1/2"** Top **8 1/2" x 8 1/2"** If stays are fitted with nuts or riveted heads **Nuts** Working pressure by rules **213 lbs.**
 Material of stays **Steel** Diameter at smallest part **1.61"** Area supported by each stay **76.5 sq. in.** Working pressure by rules **237 lbs.** End plates in steam space:
 Material **Steel** Thickness **1 9/32"** Pitch of stays **18" x 19 3/2"** How are stays secured **Double nuts and washers** Working pressure by rules **218 lbs.** Material of stays **Steel**
 Diameter at smallest part **3 1/8"** Area supported by each stay **356 sq. in.** Working pressure by rules **224 lbs.** Material of Front plates at bottom **Steel**
 Thickness **3/4"** Material of Lower back plate **Steel** Thickness **3/4"** Greatest pitch of stays **17" x 7 1/2"** Working pressure of plate by rules **273 lbs.**
 Diameter of tubes **3"** Pitch of tubes **4 1/2" x 4 1/2"** Material of tube plates **Steel** Thickness: Front **3/4"** Back **3/4"** Mean pitch of stays **8 3/8"**
 Working pressures by rules **248 lbs.** Girders to Chamber tops: Material **Steel** Depth and
 thickness of girder at centre **10 1/2" x 7 1/2"** Length as per rule **2' 11 5/8"** Distance apart **8 3/4"** Number and pitch of stays in each **3 @ 8 1/2"**
 Working pressure by rules **248 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** Diameter of flue **Yes** Material of flue plates **Yes** Thickness **Yes**
 Are they 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**

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 Sa _____

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 _____ Rivets _____ Plates _____

Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____

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 1 Crank shaft, 1 Propeller shaft, 4 Propeller blades, 1 Piston rod, 1 Valve spindle, 2 Eccentric rods, 1 Stern bush, 1 set each of top & bottom brasses bolts for one connecting rod, 24 Junk ring bolts, 78 Cylinder cover studs, 4 Main bearing bolts, 6 Coupling bolts, 125 Condenser tubes, 60 Boiler tubes, 1 set each valve seats for main & donkey, check valves, 1/2 set Air pump valves & guards, 1/2 set of total number of valves for Aux. pumps & &

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

General Manager.	
1914	July 11, Aug. 5, 6, 11, 13, 14, 20, 21, 22, Sept. 2, 4, 5, 7, 8, 10, 12, 14, 16, 19, 22, 26, 29, 30, Oct. 1, 7, 14, Nov. 2, 5, 18, Dec. 5, 16, 18, 19, 20
1915	Jan. 5, 6, 9, 11, 15, 16, 18, 21, 22, 23, Feb. 2, 3, 4, 5, 12, 16, 17, 18, 19, 20, 24, 27, Mar. 1, 2, 6, 9, 10, 16, 17, 18, 19, 22, 23, 24, 25, 26
	Apr. 5, 6, 7, 9, 10, 12, 14, 16, 19, 20, 22, 23, 24, 26, 27, 29, 30, May 1, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 24, 25, 26, 28, 29
	June 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 14, 17, 18, 19, 22, 23, 24, 26, 28, July 2, 5, 6, 7, 8, 9, 10, 12, 17, 19, 20, 21, 23, 26, 27, 28, 31, Aug. 2, 3, 14
Dates of Survey while building	Sept. 7-11
During progress of work in shops -	
During erection on board vessel -	
Total No. of visits	158

Is the approved plan of main boiler forwarded herewith Yes
 " " " donkey " " "

Dates of Examination of principal parts—Cylinders 7th June 1915 Slides 1st May 1915 Covers 7th June 1915 Pistons 2nd May 1915 Rods 27th Apr.
 Connecting rods 10th May 1915 Crank shaft 6th Apr. 1915 Thrust shaft 10th Apr. 1915 Tunnel shafts 4th June 1915 Screw shaft 26th May 1915 Propeller 18th July
 Stern tube 8th May 1915 Steam pipes tested 22nd June 1915 Engine and boiler seatings 9th June 1915 Engines holding down bolts 21st June
 Completion of pumping arrangements 4th August 1915 Boilers fixed 19th May 1915 Engines tried under steam 14th Aug. 1915
 Main boiler safety valves adjusted 2nd August 1915 Thickness of adjusting washers Jamb nuts
 Material of Crank shaft Steel Identification Mark on Do. No. 114 A.S.W. Material of Thrust shaft Steel Identification Mark on Do. No. 114 A
 Material of Tunnel shafts Steel Identification Marks on Do. No. 114 A.S.W. Material of Screw shafts Steel Identification Marks on Do. No. 114 A
 Material of Steam Pipes Lap welded w.i. & solid drawn steel Test pressure 600lbs. per sq. in.

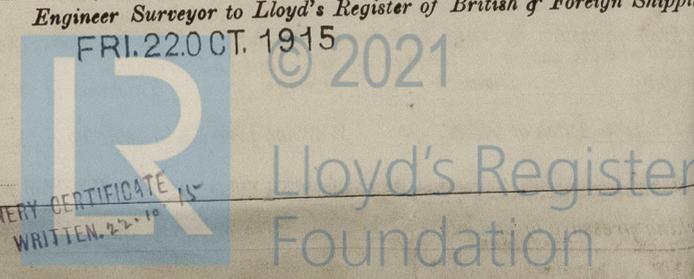
General Remarks (State quality of workmanship, opinions as to class, &c. These Engines and Boilers have been constructed under Special Survey, in accordance with the Rules, and of good material and workmanship. They have been securely fitted on board, and have been satisfactorily tried under steam. The Machinery of this vessel is eligible, in my opinion, for classification **LMC 9.15** in the Register Book.

Mean speed of 6 Runs on Trial when Half Loaded = 16.278 knots

See Special Endorsement 20/10/15.

The amount of Entry Fee	£ 3 : 0 :	When applied for, 13 th Sept. 1915
Special Donkey Boiler Fee	£ 105 : 9 : 9	When received, 14 th Sept. 1915
Travelling Expenses (if any)	£ :	

FRI. 15 OCT. 1915
 Committee's Minute
 Assigned
 + LMC 9.15
 7D
 a.s. Williamson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping
 FRI. 22 OCT. 1915



Certificate (if required) to be written on or below the space for Committee's Minute.