

## REPORT ON MACHINERY.

No. 1005

WED. 13 OCT. 1915

Port of NAGASAKI.

Received at London Office

19

No. in Survey held at **NAGASAKI.** Date, first Survey 11<sup>th</sup> July 1914 Last Survey 11<sup>th</sup> Sept. 1915.  
 Reg. Book. on the *Twin s.s. "Manila Maru"* (Number of Vests 158)

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 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*

GINES, &c.—Description of Engines *Twin screw Triple expansion* No. of Cylinders 6 No. of Cranks 6  
 Dia. of Cylinders 26 $\frac{1}{2}$ " 14 $\frac{1}{2}$ " 7 $\frac{1}{2}$ " Length of Stroke 48" Revs. per minute 85.3 Dia. of Screw shaft as per rule 14 $\frac{1}{2}$ " as fitted 15 $\frac{1}{2}$ " 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 $\frac{1}{8}$ "

Dia. of Tunnel shaft as per rule 13 $\frac{1}{4}$ " as fitted 14 $\frac{1}{4}$ " Dia. of Crank shaft journals as per rule 14 $\frac{1}{4}$ " as fitted 14 $\frac{1}{4}$ " Dia. of Crank pin 15" Size of Crank webs 22 $\frac{1}{2}$ " x 9 $\frac{1}{2}$ " Dia. of thrust shaft under  
 bars 14 $\frac{3}{4}$ " Dia. of screw 17 $\frac{1}{9}$ " 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 $\frac{1}{2}$ " 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  
*Sanitary 5" x 6" x 12"*

Engine Room 3 0 3 $\frac{1}{2}$ " In Holds, &c. No. 1 hold 2 0 3 $\frac{1}{2}$ " No. 2 hold 2 0 3 $\frac{1}{2}$ " No. 3 hold 2 0 3 $\frac{1}{2}$ "

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 *Yes* 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 28<sup>th</sup> May 1915 of Stern Tube 25<sup>th</sup> May 1915 Screw shaft and Propeller 25<sup>th</sup> July 1915

the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *Bridge deck*

MANUFACTURERS, &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 21<sup>st</sup> May 1915 No. of Certificate *No. 62 for No. 1, 2, & 3*

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 $\frac{1}{2}$ " Mean dia. of boilers 15' 0" Length 12' 0" Material of shell plates *Steel*

Thickness 1 $\frac{1}{2}$ " Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged *No.* Descrip. of riveting: cir. seams *Double*

g. seams *2 straps* Diameter of rivet holes in long. seams 1 $\frac{1}{2}$ " Pitch of rivets 10" x 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"

Area of compensating ring 36 $\frac{1}{2}$ " x 32 $\frac{1}{2}$ " x 1 $\frac{1}{2}$ " No. and Description of Furnaces in each boiler *3 Morrison's* Material *Steel* Outside diameter 4' 0 $\frac{1}{2}$ "

Length of plain part top 21" bottom 22" Thickness of plates crown 21" bottom 22" Description of longitudinal joint *Welded* No. of strengthening rings

Working pressure of furnace by the rules 219 lbs. Combustion chamber plates: Material *Steel* Thickness: Sides 1 $\frac{1}{2}$ " Back 1 $\frac{1}{2}$ " Top 1 $\frac{1}{2}$ " Bottom 1 $\frac{1}{2}$ "

Pitch of stays to ditto: Sides 9 $\frac{1}{2}$ " x 7 $\frac{1}{2}$ " Back 9" x 8 $\frac{1}{2}$ " Top 8 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ " 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 $\frac{3}{32}$ " Pitch of stays 18" x 19 $\frac{3}{4}$ " How are stays secured *Double nuts and washers* Working pressure by rules 218 lbs. Material of stays *Steel*

Diameter at smallest part 3 $\frac{1}{8}$ " Area supported by each stay 356 sq. in. Working pressure by rules 224 lbs. Material of Front plates at bottom *Steel*

Thickness 3 $\frac{1}{4}$ " Material of Lower back plate *Steel* Thickness 3 $\frac{1}{4}$ " Greatest pitch of stays 17" x 7 $\frac{1}{2}$ " Working pressure of plate by rules 273 lbs.

Diameter of tubes 3" Pitch of tubes 4 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " Material of tube plates *Steel* Thickness: Front 3 $\frac{1}{4}$ " Back 3 $\frac{1}{4}$ " Mean pitch of stays 8 $\frac{1}{8}$ "

Distance across wide water spaces 13 $\frac{1}{4}$ " Working pressures by rules 248 lbs. Girders to Chamber tops: Material *Steel* Depth and

Thickness of girder at centre 10 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ " Length as per rule 2' 11 $\frac{1}{2}$ " Distance apart 8 $\frac{1}{2}$ " Number and pitch of stays in each 3 0 8 $\frac{1}{2}$ "

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*

006942-006953-0137



# 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 \_\_\_\_\_

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 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 valves & seats for main & donkey, check valves, 1/2 set Air pump valves & guards, 1/2 set of total number of valves for Aux. pumps &c &c

The foregoing is a correct description,  
MITSU BISHI DOCKYARD & ENGINE WORKS.

General Manager.

Dates of Survey while building \_\_\_\_\_

During progress of work in shops—  
1914 July 11, Aug. 5, 6, 11, 13, 14, 20, 21, 22, Sept. 2, 4, 5, 7, 8, 10, 12, 14, 16, 19, 22, 24, 29, 30, Oct. 1, 7, 14, Nov. 2, 5, 18, Dec. 5, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 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, 27, 28, 29, 30, 31, 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, 21, 24, 25, 26, 28, 29, 30, 31, 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, Sept. 7, 11.

Is the approved plan of main boiler forwarded herewith Yes. \_\_\_\_\_

" " " donkey " " " Yes. \_\_\_\_\_

Dates of Examination of principal parts—Cylinders 7<sup>th</sup> June 1915 Slides 1<sup>st</sup> May 1915 Covers 7<sup>th</sup> June 1915 Pistons 2<sup>nd</sup> May 1915 Rods 27<sup>th</sup> Apr. 1915 Connecting rods 10<sup>th</sup> May 1915 Crank shaft 6<sup>th</sup> Apr. 1915 Thrust shaft 10<sup>th</sup> Apr. 1915 Tunnel shafts 4<sup>th</sup> June 1915 Screw shaft 26<sup>th</sup> May 1915 Propeller 18<sup>th</sup> July 1915 Stern tube 8<sup>th</sup> May 1915 Steam pipes tested 22<sup>nd</sup> June 1915 Engine and boiler seatings 9<sup>th</sup> June 1915 Engines holding down bolts 21<sup>st</sup> June 1915 Completion of pumping arrangements 4<sup>th</sup> August 1915 Boilers fixed 19<sup>th</sup> May 1915 Engines tried under steam 14<sup>th</sup> Aug. 1915 Main boiler safety valves adjusted 2<sup>nd</sup> August 1915 Thickness of adjusting washers Jam 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.S.W. 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.S.W. 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 certification **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<sup>th</sup> Sept. 1915.

Special Donkey Boiler Fee £ 105 : 9 : 9 \_\_\_\_\_ When received, 14<sup>th</sup> Sept. 1915.

Travelling Expenses (if any) £ : : \_\_\_\_\_

FRI. 15 OCT. 1915

Committee's Minute

Assigned

+ LMC 9.15

7D

as Williams

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

FRI. 22 OCT. 1915

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