

REPORT ON MACHINERY.

No. 847

Port of **NAGASAKI**

Received at London Office

THU. OCT. 9-1913

No. in Survey held at **NAGASAKI**

Date, first Survey 1st March 1912 Last Survey 20th Sept. 1913

g. Book. on the Combination Triple s.s. "Katori Maru"

(Number of Voids 208)

Master **J. Murai** Built at **Nagasaki** By whom built **Mitsui Bishi Dockyard Engine Works** When built **1913**

Engines made at **Nagasaki** By whom made **Mitsui Bishi Dockyard Engine Works** when made **1913**

Boilers made at **Nagasaki** By whom made **Mitsui Bishi Dockyard Engine Works** when made **1913**

Registered Horse Power Owners **Nippon Yusen Kaisha** Port belonging to **Tokio**

Horse Power as per Section 28 **1669** Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yes**

Engines, &c.—Description of Engines **Triple screws: 2 sets of Triple expansion engines, One set of Parsons Exhaust Turbine** No. of Cylinders **6** No. of Cranks **6**

No. of Cylinders **27** Length of Stroke **48** Revs. per minute **92** Dia. of Screw shaft **14.75** Material of forged steel 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

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

s are fitted, is the shaft lapped or protected between the liners **Yes** Length of stern bush **6' 0"**

Dia. of Tunnel shaft **13.61** Dia. of Crank shaft journals **14.29** Dia. of Crank pin **15** Size of Crank webs **9.5 x 22.6** Dia. of thrust shaft under

cars **14.5** Dia. of screw **16.6** Pitch of Screw **19' 0"** No. of Blades **4** State whether moveable **Yes** Total surface **74.8 sq. ft.**

No. of Feed pumps **4** Diameter of ditto **5** 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 **10.5 x 18.5 x 10.5, 8 x 9 x 9, 12 x 8 x 10** No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room **3 x 3.5** In Boiler Room **2 x 3.5** In Holds, &c. No. 1 Hold **2 x 3.5**, No. 2 Hold **2 x 3.5**, No. 3 Hold **2 x 3.5**,

No. 4 Hold **4 x 3.5**, No. 5 Hold **2 x 3.5**, No. 6 Hold **2 x 3.5**, Cross Bunker **2 x 3.5**, Wing Shaft Tunnel **8 x 2.5**, Centre Tunnel **1 x 3.5** + **1 x 2.5**

No. of Bilge Injections **2** sizes **8** Connected to condenser, or to circulating pump **Yes** Is a separate Donkey Suction fitted in Engine room & size **10.5 x 18.5**

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 **Yes**

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 **Below**

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**

Are the pipes carried through the bunkers **Bilge Pipes** How are they protected **Through bilge under the ceiling**

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**

Time of examination of completion of fitting of Sea Connections **28th March 1913** of Stern Tube **28th March 1913** Screw shaft and Propeller **10th June 1913**

Is 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 **Swiss Alville & Sons**

Heating Surface of Boilers **6721 sq. ft.** Is Forced Draft fitted **Yes** No. and Description of Boilers **6 Single ended Scotch**

Working Pressure **200 lbs.** Tested by hydraulic pressure to **400 lbs.** Date of test **22nd Feb. 1913** No. of Certificate **55**

Can each boiler be worked separately **Yes** Area of fire grate in each boiler **63.25 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**

Least distance between boilers or uptakes and bunkers or woodwork **1' 7 1/2"** Mean dia. of boilers **15' 6"** Length **11' 9"** 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**

seams **Double riveted** 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"**

Percentage of strength of longitudinal joint **91.44** Working pressure of shell by rules **211 lbs.** Size of manhole in shell **16" x 12"**

Is compensating ring **36 1/2 x 32 1/2 x 1 1/2** No. and Description of Furnaces in each boiler **3 Lube Fire Ball** Material **Steel** Outside diameter **47 1/2"**

Height of plain part **5"** Thickness of plates **5"** Description of longitudinal joint **Welded** No. of strengthening rings **None**

Working pressure of furnace by the rules **213 lbs.** Combustion chamber plates: Material **Steel** Thickness: Sides **1 1/16"** Back **1 1/16"** Top **1 1/16"** Bottom **1 5/16"**

No. of stays to ditto: Sides **9 1/2 x 7 1/2** Back **8 1/2 x 9** Top **8 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 **1.6"** Area supported by each stay **76.4 sq. in.** Working pressure by rules **239 lbs.** End plates in steam space:

Material **Steel** Thickness **1 3/8"** Pitch of stays **17" x 20"** How are stays secured **At both ends** Working pressure by rules **225 lbs.** Material of stays **Steel**

Water at smallest part **3 1/8"** Area supported by each stay **340 sq. in.** Working pressure by rules **235 lbs.** Material of Front plates at bottom **Steel**

Thickness **3/4"** Material of Lower back plate **Steel** Thickness **3/4"** Greatest pitch of stays **9" x 8 1/2"** Working pressure of plate by rules **210 lbs.**

Material of tubes **Steel** Pitch of tubes **4 1/8" x 4 1/2"** Material of tube plates **Steel** Thickness: Front **3/4"** Back **3/4"** Mean pitch of stays **8 1/2"**

Working pressures across wide water spaces **13 1/2"** Working pressures by rules **248 lbs.** Girders to Chamber tops: Material **Steel** Depth and

Thickness of girder at centre **10" x 7 1/2"** Length as per rule **2' 8 1/2"** Distance apart **8"** Number and pitch of stays in each **3 x 8 1/2"**

Working pressure by rules **300 lbs.** Superheater or Steam chest; how connected to boiler **Yes** Can the superheater be shut off and the boiler worked

separately **Yes** Diameter **10"** Length **10"** Thickness of shell plates **1/2"** Material **Steel** Description of longitudinal joint **Welded** Diam. of rivet

Pitch of rivets **10"** Working pressure of shell by rules **248 lbs.** Diameter of flue **10"** Material of flue plates **Steel** Thickness **1/2"**

Are they stiffened with rings **Yes** Distance between rings **10"** Working pressure by rules **248 lbs.** End plates: Thickness **1/2"** How stayed **By stays**

Working pressure of end plates **248 lbs.** Area of safety valves to superheater **10"** Are they fitted with easing gear **Yes**

Manufacturers of Steel

SPARE GEAR. State the articles supplied:—As per Rule, and in addition 2 Connecting rod top end bolts & nuts, 1 set of Coupling bolts, 1 set of Bilge Pump Valves, 1 set of Piston springs, 1 Crank shaft, 3 Propeller shafts, 4 Rings & 2 Centre Propeller blades, 1 Ring & 1 Centre Stern bar with lignum vitae, 1 Pair of Connecting rod braces, 1 Pair of Crosshead braces, 1 set of Link braces, 2 Eccentric straps, 2 Eccentric rods, 1 Air pump circulating pump rod, 1 H.P. & 1 L.P. Valve spindle, 3 sets of Cheek valves, 8 Cylinder cover bolts, 13 Junk ring bolts, 6 Valve chest cover bolts, 60 The tubes, 86 Condenser tubes, 3 Springs for Cylinder escape valves, 6 Safety valve springs &c

The foregoing is a correct de-
MITSUBISHI DOCKYARD & ENGINE WORKS.

Manufacturer.

[illegible]

” ” ” *donkey* ” ”

Dates of Examination of principal parts—Cylinders 24/3/13 23/13 Slides 14/3/13 Covers 14/3/13 Pistons 14/3/13 Rods 14/3/13
Connecting rods 4/3/13 Crank shaft 4/3/13 Thrust shaft 4/3/13 Tunnel shafts 24/3/13 25/13 Screw shaft 4/3/13 24/13 Propeller 4/4/13
Stern tube 22/3/13 Steam pipes tested 14/3/13 Engine and boiler seatings 24/4/13 Engines holding down bolts 9/7/13
Completion of pumping arrangements 20/7/13 Boilers fixed 15/5/13 Engines tried under steam 9/8/13
Main boiler safety valves adjusted 18/7/13 Thickness of adjusting washers No washers, brass jamb nuts
Material of Crank shaft Forged Steel Identification Mark on Do. ASW 4-13 Material of Thrust shaft Forged Steel Identification Mark on Do. ASW 4-13
Material of Tunnel shafts Forged Steel Identification Marks on Do. ASW 2-4-13 Material of Screw shafts Forged Steel Identification Marks on Do. ASW 4-13
Material of Steam Pipes Lap welded wrought iron Test pressure 600 lbs. per sq. in.

General Remarks (State quality of workmanship, opinions as to class, &c. These Engines & Boilers have been constructed under Special Survey, in accordance with the Rules, and of good materials & workmanship. They have been securely fitted on board, and have been satisfactorily tried under full steam. The rotor casings have been subjected to the prescribed hydraulic test and found sound and good. The Machinery of this vessel is eligible, in my opinion, for the record of **LMC 9.13** in the Register Book.

Mean Speed of 6 Runs on Trial when Half Loaded - 16.731 knots.

Particulars of Turbine :- Estimated I. H. P. 34460. Revolutions per minute 210.

Casing 11:7½" to 12:7", Drum 11:1", Length of Drum 10:0", Dia. of rotor spindle at bearing 1:9" with bore 1:0", Dia. of Dummy Cyl. 9:8"
 Dia. of Screw Shaft { as per Rule 11.465 ✓
 as fitted 12½", Material Forged Steel, The shaft is fitted with continuous liner the whole length
 stern tube, and the after end of liner is made water tight in the propeller boss, Length of stern bush 5:6", Dia. of Turn
 Shaft { as per Rule 10.71 ✓
 as fitted 11½", Material Forged Steel, Dia. of Screws 11:6", Pitch of Screws 9:3", No. of Blades 4 moveable

Total Surface 50.4 sq. ft.

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

H.P. not to be recorded.

The amount of Entry Fee..	£ 3 : 0 :	When applied for,
Special	£ 130 : 1 :	22 nd Sept. 1922
Donkey Boiler Fee	£ : :	When received,
Travelling Expenses (if any) £	: :	22 nd Sept. 1922

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

Committee's Minute

FR. OCT. 10. 1913

Assigned

+ Lm 6. 9. 13

MACHINERY CERTIFICATE
WRITTEN.

Lloyd's Register
Foundation