

## REPORT ON MACHINERY.

No. 980.

Port of NAGASAKI.

Received at London Office

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No. in Survey held at NAGASAKI.

Date, first Survey 29<sup>th</sup> Jan'y. 1914 Last Survey 13<sup>th</sup> March 1915.

Reg. Book. on the Twin geared turbine s.s. "Toyooka Maru" (Number of Visits 162)

Master S. Hirase Built at Nagasaki By whom built Mitsui Bishi Dockyard &amp; Engine Works When built 1913

Engines made at Nagasaki By whom made Mitsui Bishi Dockyard &amp; Engine Works when made 1913

Boilers made at Nagasaki By whom made Mitsui Bishi Dockyard &amp; Engine Works when made 1913

Registered Horse Power Owners Nippon Yusen Kaisha Port belonging to Tokio

Nom. Horse Power as per Section 28 853 <sup>not for Reg 13k.</sup> Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

GINES, &c.—Description of Engines Parsons Geared Turbines Two Screws No. of Cylinders 4 No. of Cranks 4  
Dia. of Cylinders See next page Length of Stroke Revs. per minute L.P.T. 2411 Dia. of Screw shaft as per rule 12.38 as fitted 13.5 Material of forged steel screw shaft

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 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 If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 5'3"

Dia. of Tunnel shaft as per rule 11.57 as fitted 12.0 Dia. of Crank shaft journals as per rule 4 1/2 as fitted 5 1/2 Dia. of Crank pin Size of Crank webs Dia. of thrust shaft under

collars 12 1/4 Dia. of screw 14 1/3 Pitch of Screw 13 1/9 No. of Blades 4 State whether moveable Yes Total surface 65.2 sq. ft. each

No. of Feed pumps 3 Sets Diameter of ditto 12 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Sets Diameter of ditto 4 1/2 Stroke 9 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sets Duplex Sizes of Pumps 10 10 1/2 x 12 1/2, 10 8 1/2 x 6 1/2 x 9 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2 @ 3 1/2 In Holds, &amp;c. No. 1 Hold 2 @ 3 1/2 No. 2 Hold 2 @ 4 No. 3 Hold 2 @ 5 1/2

No. 4 &amp; 5 Holds 2 @ 4 Deep tanks 2 @ 3 1/2 x 2 @ 5 1/2 Tunnel well 1 @ 3 Shaft tunnel 1 @ 3

No. of Bilge Injections 2 sizes 7 Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room &amp; size Yes 5 1/2

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 Valves &amp; 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 3 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

What pipes are carried through the bunkers Bilge pipes How are they protected Wood casing covered with sheet iron

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> Oct. 1914 of Stern Tube 24<sup>th</sup> Oct. 1914 Screw shaft and Propeller 29<sup>th</sup> Jan'y. 1915

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

OILERS, &amp;c.—(Letter for record S) Manufacturers of Steel David Colville &amp; Sons Ltd.

Total Heating Surface of Boilers 9507. Is Forced Draft fitted Yes No. and Description of Boilers 4 Cylindrical Single ended

Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 16<sup>th</sup> Oct. 1914 No. of Certificate 60

Can each boiler be worked separately Yes Area of fire grate in each boiler 56.2 sq. ft. No. and Description of Safety Valves to

each boiler Two Spring loaded Area of each valve 9.62 sq. in. Pressure to which they are adjusted 203 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 Mean dia. of boilers 14 1/3 Length 11 1/6 Material of shell plates Steel

Thickness 1 1/16 Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams riveted lap.

ong. seams Double butt straps Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 10 1/5 Lap of plates or width of butt straps 22

Per centages of strength of longitudinal joint rivets 91.5 plate 85.0 Working pressure of shell by rules 229.5 lbs. Size of manhole in shell 16 x 12

Size of compensating ring 36 x 31 x 1 1/2 No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 45 1/2

Length of plain part top Thickness of plates crown 5 1/2 bottom 8 Description of longitudinal joint Welded No. of strengthening rings

Working pressure of furnace by the rules 229.5 lbs. Combustion chamber plates: Material Steel Thickness: Sides 1 1/2 Back 1 1/2 Top 1 1/2 Bottom 1 1/2

Pitch of stays to ditto: Sides 10 1/4 x 7 1/2 Back 8 1/2 x 8 1/2 Top 9 x 8 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 209 lbs.

Material of stays Steel Diameter at smallest part 1 1/2 Area supported by each stay 73.4 sq. ft. Working pressure by rules 229.5 lbs. End plates in steam space:

Material Steel Thickness 1 1/2 Pitch of stays 19 1/2 x 16 1/2 How are stays secured Double nuts Working pressure by rules 216 lbs. Material of stays Steel

Diameter at smallest part 3 Area supported by each stay 321.7 sq. in. Working pressure by rules 229.5 lbs. Material of Front plates at bottom Steel

Thickness 3/4 Material of Lower back plate Steel Thickness 1 1/2 Greatest pitch of stays 9 x 14 1/2 Working pressure of plate by rules 209 lbs.

Diameter of tubes 3 Pitch of tubes 4 5/16 x 4 1/8 Material of tube plates Steel Thickness: Front 3/4 Back 3/4 Mean pitch of stays 8 1/2 x 8 1/2

Pitch across wide water spaces 12 1/2 Working pressures by rules 220 lbs. Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 10 3/4 double Length as per rule 29.3 Distance apart 8 1/2 Number and pitch of stays in each 2 @ 9

Working pressure by rules 325 lbs. Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

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## Manufacturers of Steel

*Manufacturer.*

Is the approved plan of main boiler forwarded herewith Yes ✓