

REPORT ON MACHINERY.

Received at London Office JUN - 25 JUL 1917

Date of writing Report 24th May 1917. When handed in at Local Office 24th May 1917 Port of **NAGASAKI.**

No. in Survey held at **NAGASAKI.** Date, First Survey 10th May 1916 Last Survey 23rd May 1917
Reg. Book. on the s.s. "Nagano Maru" (Number of Visits 94) Tons } Gross 3810
Net 2343

Master E. Takahashi Built at Nagasaki By whom built Mitsubishi S. & B. Works When built 1917

Engines made at Nagasaki By whom made Mitsubishi Dockyard & Engine Works when made 1917

Boilers made at Nagasaki By whom made Do. when made 1917

Registered Horse Power Owners Nippon Yusen Kaisha Port belonging to Tokio

Nom. Horse Power as per Section 28 342 ✓ Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Triple Expansion ✓ No. of Cylinders 3 ✓ No. of Cranks 3 ✓

Dia. of Cylinders 23" 38" & 64" ✓ Length of Stroke 48" Revs. per minute 88 ✓ Dia. of Screw shaft as per rule 14.5" Material of screw shaft Steel ✓
as fitted 15"

Is 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 in the propeller boss ✓ 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' 1 3/8"

Dia. of Tunnel shaft as per rule 12.49" ✓ Dia. of Crank shaft journals as per rule 13.116" ✓ Dia. of Crank pin 14" ✓ Size of Crank webs 8 3/4" x 19 1/2" ✓ Dia. of thrust shaft under collars 13 1/2" ✓ Dia. of screw 16' 6" ✓ Pitch of Screw 17' 3" ✓ No. of Blades 4 ✓ State whether moveable Yes ✓ Total surface 76 sq. ft. ✓

No. of Feed pumps 2 ✓ Diameter of ditto 4 1/2" ✓ Stroke 22" ✓ Can one be overhauled while the other is at work Yes ✓
No. of Bilge pumps 2 ✓ Diameter of ditto 4 1/2" ✓ Stroke 22" ✓ Can one be overhauled while the other is at work Yes ✓

No. of Donkey Engines 3 ✓ Sizes of Pumps 2 duplex 8" x 10" x 8" ✓ 1 duplex 8" x 6" x 21" ✓ No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 3 @ 3 1/2" ✓ In Holds, &c. No. 1 Hold 2 @ 3 1/2" No. 2 Hold 2 @ 3 1/2" Tunnel 1 @ 2 1/2" ✓

No. of Bilge Injections 1 sizes 7" ✓ Connected to condenser, or to circulating pump No. Is a separate Donkey Suction fitted in Engine room & size Yes 4 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 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 ✓

What pipes are carried through the bunkers Bilge pipes ✓ How are they protected With steel plates ✓

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 ✓

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 David Colville & Sons Ltd ✓

Total Heating Surface of Boilers 4394 sq. ft. ✓ Is Forced Draft fitted Yes ✓ No. and Description of Boilers 2 Single ended Cylindrical. Working Pressure 200 lbs. ✓ Tested by hydraulic pressure to 400 lbs. ✓ Date of test 15th Feb. 1917 No. of Certificate 71 ✓

Can each boiler be worked separately Yes ✓ Area of fire grate in each boiler 54.31 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 1/16" ✓ Mean dia. of boilers 14' 0" ✓ Length 11' 6" ✓ Material of shell plates Steel ✓

Thickness 1 5/16" ✓ Range of tensile strength 28 to 32 tons ✓ Are the shell plates welded or flanged No. ✓ Descrip. of riveting: cir. seams Double ✓ long. seams 2 straps ✓ Diameter of rivet holes in long. seams 1 3/8" ✓ Pitch of rivets 7 1/2" & 2 3/4" ✓ Lap of plates or width of butt straps 20 1/2" ✓

Per centages of strength of longitudinal joint rivets 88.6 ✓ plate 85.5 ✓ Working pressure of shell by rules 212 lbs. ✓ Size of manhole in shell 16" x 12" ✓

Size of compensating ring 37" x 33" ✓ No. and Description of Furnaces in each boiler Suspension type ✓ Material Steel ✓ Outside diameter 3' 9 1/2" ✓

Length of plain part top ✓ bottom ✓ Thickness of plates crown 9/16" ✓ bottom 7/16" ✓ Description of longitudinal joint Welded ✓ No. of strengthening rings ✓

Working pressure of furnace by the rules 217 lbs. ✓ Combustion chamber plates: Material Steel ✓ Thickness: Sides 3/2" ✓ Back 3/4" ✓ Top 3/2" ✓ Bottom 1/16" ✓

Pitch of stays to ditto: Sides 8" x 11" ✓ Back 9" x 10 1/2" ✓ Top 7" x 11 1/2" ✓ If stays are fitted with nuts or riveted heads Nuts ✓ Working pressure by rules 212 lbs. ✓

Material of stays Steel ✓ Area at smallest part 2.02 ✓ Area supported by each stay 83 sq. in. ✓ Working pressure by rules 215 lbs. ✓ End plates in steam space: Material Steel ✓ Thickness 1 1/32" ✓ Pitch of stays 20" x 18" ✓ How are stays secured Double nut ✓ and washer ✓ Working pressure by rules 214 lbs. ✓ Material of stays Steel ✓

Area at smallest part 7.67 ✓ Area supported by each stay 360 sq. in. ✓ Working pressure by rules 221 lbs. ✓ Material of Front plates at bottom Steel ✓ Thickness 3/32" ✓ Material of Lower back plate Steel ✓ Thickness 3/24" ✓ Greatest pitch of stays 13 1/2" ✓ Working pressure of plate by rules 211 lbs. ✓

Diameter of tubes 3 1/2" ✓ Pitch of tubes 4 1/2" x 4 3/8" ✓ Material of tube plates Steel ✓ Thickness: Front 3/32" ✓ Back 27/32" ✓ Mean pitch of stays 10" ✓

Pitch across wide water spaces 1.1 1/2" ✓ Working pressures by rules 216 lbs. ✓ Girders to Chamber tops: Material Steel ✓ Depth and thickness of girder at centre 10 1/2" x 7 1/8" ✓ Length as per rule 31.9" ✓ Distance apart 9 1/2" x 11 1/2" ✓ Number and pitch of stays in each 30 7" ✓

Working pressure by rules 214 lbs. ✓ Steam dome: description of joint to shell ✓ % of strength of joint ✓

Diameter ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet holes ✓

Pitch of rivets ✓ Working pressure of shell by rules ✓ Crown plates ✓ Thickness ✓ How stayed ✓

Tested by Hydraulic Pressure to ✓

SUPERHEATER. Type ✓ Date of Approval of Plan ✓ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler ✓

Date of Test ✓ Is Easing Gear fitted ✓

Material of Safety Valve ✓ Pressure to which each is adjusted ✓

IS A DONKEY BOILER FITTED?

No. ✓

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:— as per Rule, and in addition one H.P. valve spindle, one L.P. valve spindle, 2 eccentric rods, one set each of H.P. I.P. & L.P. packing rings, one set each of top & bottom brasses for connecting rod, 13 junk ring bolts, one set of air pump valves, one impeller & spindle for circulating pump, 45 condenser tubes & 134 ferrules, 3 cylinder escape valves & springs, and 2 safety valve springs. ✓

The foregoing is a correct description,

MITSUBISHI DOCKING & ENGINE WORKS. General Manager Manufacturer.

Dates of Survey while building: During progress of work in shops -- 8.11.16.18.19.22.23.27.29. 1917 Jan. 6.10.16.18.19.20.22.23.25.31. Feb. 3.5.6.8.9.13.14.15.17.19. 20.22.23.24.27.28. March 1.2.3.5.6.7.8.9.10.12.15.16.19.21.22.23.24.27.28.29.30. April 2.9.14.16.17.18. 21.23.25.28. May 3.4.5.9.12.14.23. Total No. of visits: 94 Is the approved plan of main boiler forwarded herewith Yes. ✓

Dates of Examination of principal parts—Cylinders 8.3.17 Slides 5.3.17 Covers 8.3.17 Pistons 7.3.17 Rods 19.3.17 Connecting rods 5.3.17 Crank shaft 19.2.17 Thrust shaft 29.3.17 Tunnel shafts 28.3.17 Screw shaft 19.2.17 Propeller 7.3.17 Stern tube 14.4.17 Steam pipes tested 5.5.17 Engine and boiler seatings 4.5.17 Engines holding down bolts 5.3.17 Completion of pumping arrangements 9.5.17 Boilers fixed 28.4.17 Engines tried under steam 12.5.17 Completion of fitting sea connections 25.4.17 Stern tube 23.4.17 Screw shaft and propeller 23.4.17 Main boiler safety valves adjusted 9.5.17 Thickness of adjusting washers No washers, brass joint nuts

Material of Crank shaft Steel Identification Mark on Do. 134 A.S.W. Material of Thrust shaft Steel Identification Mark on Do. 134 A.S.W. Material of Tunnel shafts Steel Identification Marks on Do. 134 A.S.W. Material of Screw shafts Steel Identification Marks on Do. 134 A.S.W. Material of Steam Pipes Steel Test pressure 600lb. ✓

Is an installation fitted for burning oil fuel ✓ Is the flash point of the oil to be used over 150°F. ✓ Have the requirements of Section 49 of the Rules been complied with ✓ Is this machinery duplicate of a previous case Yes If so, state name of vessel "Akita Maru" & "Yamagata Maru" ✓

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 materials 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 the record of LMC 5.17 in the Register Book.

Mean speed of 6 Runs on Trial when 1/3 Loaded = 14.318 Knots.

It is submitted that this vessel is eligible for THE RECORD. + LMC 5.17. F.D. JWD 7/7/17

as Williamson Engineer Surveyor to Lloyd's Register of Shipping.

Table with 2 columns: Fee type and Amount. Rows include: The amount of Entry Fee (£ 3 : 0 : 0), Special Fee (£ 53 : 13 : 0), Donkey Boiler Fee (£ : :), Travelling Expenses (if any) (£ : :).

Committee's Minute

FRI.-6 JUL. 1917

Assigned

+ LMC 5.17

F.D.

MACHINERY DEPARTMENT



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Certificate (if required) to be sent to Nagasaki Office

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

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