

REPORT ON MACHINERY.

Received at London Office WED MAR 31 1920

Date of writing Report 18th Feb. 1920 When handed in at Local Office 18th Feb. 1920. Port of **NAGASAKI.**

No. in Survey held at **NAGASAKI.** Date, First Survey 29th April 1919 Last Survey 27th Jan. 1920

Reg. Book. on the "Atlas Maru" (Number of Visits 81) Tons { Gross 7342 Net 4467

Master **H. Ueda** Built at **Nagasaki** By whom built **Mitsubishi Zosen Kaisha** When built **1920**

Engines made at **Nagasaki** By whom made **Mitsubishi Zosen Kaisha** when made **1920**

Boilers made at **Nagasaki** By whom made **Mitsubishi Zosen Kaisha** when made **1920**

Registered Horse Power Owners **Osaka Shosen Kaisha** Port belonging to **Osaka**

Nom. Horse Power as per Section 28 **574** 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 **28" 47" & 79"** Length of Stroke **51"** Revs. per minute **79** Dia. of Screw shaft **15.911** Material of screw shaft **Steel**

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 **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 **6'0"**

Dia. of Tunnel shaft **14.521** Dia. of Crank shaft journals **15.268** Dia. of Crank pin **16"** Size of Crank webs **23" x 10 1/2"** Dia. of thrust shaft under collars **15 3/4"** Dia. of screw **18'9"** Pitch of Screw **19'9"** No. of Blades **4** State whether moveable **yes.** Total surface **103.5 sq. ft.**

No. of Feed pumps **2** Diameter of ditto **5"** Stroke **25 1/2"** Can one be overhauled while the other is at work **yes.**

No. of Bilge pumps **2** Diameter of ditto **5"** Stroke **25 1/2"** Can one be overhauled while the other is at work **yes.**

No. of Donkey Engines **4** Sizes of Pumps **1 Bellast Duplex 10" x 12" x 12" 1 General Service 7" x 5" x 7"** 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"**

No. of Bilge Injections **1** sizes **10"** Connected to condenser, or to circulating pump. Is a separate Donkey Suction fitted in Engine room & size **yes 3 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 **Shelter deck.**

OILERS, &c.—(Letter for record **S.**) Manufacturers of Steel **Colville Sons, and Beardmore & Co. 3.S.B.**

Total Heating Surface of Boilers **7725.9 sq. ft.** Forced Draft fitted **yes.** No. and Description of Boilers **3 Cylindrical, Single ended.**

Working Pressure **200 lbs.** Tested by hydraulic pressure to **400 lbs.** Date of test **15.12.19** No. of Certificate **100**

Can each boiler be worked separately **yes.** Area of fire grate in each boiler **63.96 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 **18"** Mean dia. of boilers **15'0"** Length **12'0"** Material of shell plates **Steel**

Thickness **1 7/8"** Range of tensile strength **28 to 32 tons** Are the shell plates welded or flanged **no.** Descrip. of riveting: cir. seams **double lap.**

Long. seams **2 Straps** Diameter of rivet holes in long. seams **1 1/2"** Pitch of rivets **10" x 5"** Lap of plates or width of butt straps **1'10"**

Percentage of strength of longitudinal joint rivets **91.4** Working pressure of shell by rules **217 lbs.** Size of manhole in shell **16" x 12"**

Size of compensating ring **37" x 33" x 1 7/8"** No. and Description of Furnaces in each boiler **3 Morrison's Suspension** Material **Steel** Outside diameter **4'0 3/4"**

Length of plain part **top 32"** Thickness of plates **bottom 32"** Description of longitudinal joint **welded** No. of strengthening rings **yes.**

Working pressure of furnace by the rules **219 lbs.** Combustion chamber plates: Material **Steel** Thickness: Sides **11/16"** Back **11/16"** Top **11/16"** Bottom **15/16"**

Pitch of stays to ditto: Sides **9 1/2" x 7 1/4"** 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** Area at smallest part **2.03 sq. in.** Area supported by each stay **74 sq. in.** Working pressure by rules **246 lbs.** End plates in steam space: Material **Steel** Thickness **1 3/8"** Pitch of stays **1'6" x 1'7 1/2"** How are stays secured **Double nuts washers** Working pressure by rules **217 lbs.** Material of stays **Steel**

Area at smallest part **7.67 sq. in.** Area supported by each stay **380 sq. in.** Working pressure by rules **210 lbs.** Material of Front plates at bottom **Steel**

Thickness **3/4"** Material of Lower back plate **Steel** Thickness **3/4"** Greatest pitch of stays **13 1/2"** Working pressure of plate by rules **226 lbs.**

Diameter of tubes **3 1/2"** Pitch of tubes **4 1/2" x 4 3/8"** Material of tube plates **Steel** Thickness: Front **3/4"** Back **3/4"** Mean pitch of stays **8 7/8"**

Pitch across wide water spaces **13 1/2"** Working pressures by rules **211 lbs.** Girders to Chamber tops: Material **Steel** Depth and thickness of girder at centre **16 1/2" x 7 1/2"** Length as per rule **2'11 5/8"** Distance apart **8" x 8 1/2"** Number and pitch of stays in each **3 @ 8 1/2"**

Working pressure by rules **248 lbs.** Steam dome: description of joint to shell **yes.** % of strength of joint **yes.**

Diameter **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.** Crown plates **yes.** Thickness **yes.** How stayed **yes.**

3 SUPERHEATER. Type **yes.** Date of Approval of Plan **yes.** Tested by Hydraulic Pressure to **yes.**

Date of Test **yes.** Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler **yes.**

Diameter of Safety Valve **yes.** Pressure to which each is adjusted **yes.** Is Easing Gear fitted **yes.**

IS A DONKEY BOILER FITTED? No.

If so, is a report now forwarded?

REPORT

of NAGASAKI

SPARE GEAR. State the articles supplied:— 1 H.P. valve spindle, 1 L.P. valve spindle, 2 eccentric rods, 1 set each of bottom brasses & bolts for one connecting rod, 1/4 total number of junk ring bolts, 1 complete set of coupling bolts, 1 complete set of main bearing bolts, 1 air pump rod, 1 impeller spindle for circulating pump, 1 set of pump valves, 3 cylinder escape valve springs, 1 complete set of valves seats for feed & bilge pumps, 1 set of valves seats for main & donkey feed checks, 1/20 total number of condenser tubes, 1/20 total number of condenser ferrules, 3 safety valve springs, 100 assorted bolts & nuts, 150 lb. of assorted steel plates, 30 lb. of assorted steel bars, 1 propeller shaft, 2 propeller blades, and spare gear for auxiliary machinery, 1 set each of H.P., I.P., & L.P. piston packing rings.

The foregoing is a correct description,

NAGASAKI WORKS, MITSUBISHI ZOSSEN KAISHA, LTD. Manufacturer.

1919 Dates of Survey while building: During progress of work in shops -- Apr. 29, May 3, 10, 14, 29, June 22, 25, Aug. 2, 7, 23, 26, 29, Sept. 2, 3, 5, 6, 8, 17, 19, 26, Oct. 15, 16, 20, 22, 23, 24, 25, 28, 29, 30, Nov. 1, 3, 5, 6, 7, 10, 11, 12, 13, 17, 18, 19, 20, 21, 22, 24, 27, 28, 29, Dec. 6, 9, 11, 13, 15, 16, 17, 18, 19, 20, 22, 26, 27. 1920 Jan. 6, 9, 12, 15, 20, 22, 27. Total No. of visits 81

Dates of Examination of principal parts: Cylinders 15, 18, 12, 19; Slides 27, 12, 19; Covers 15, 18, 12, 19; Pistons 27, 12, 19; Rods 27, 12, 19; Connecting rods 27, 12, 19; Crank shaft 13, 12, 19; Thrust shaft 9, 12, 19; Tunnel shafts 9, 13, 18, 12, 19; Screw shaft 9, 12, 19; Propeller 16, 19, 12, 19; Stern tube 11, 12, 19; Steam pipes tested 6, 9, 1, 20; Engine and boiler seatings 18, 12, 19; Engines holding down bolts 6, 1, 20; Completion of pumping arrangements 12, 1, 20; Boilers fixed 6, 1, 20; Engines tried under steam 15, 1, 20; Completion of fitting sea connections 27, 12, 19; Stern tube 22, 12, 19; Screw shaft and propeller 22, 12, 19; Main boiler safety valves adjusted 12, 1, 20; Thickness of adjusting washers Jamb nuts; Material of Crank shaft Steel; Identification Mark on Do. No. 163 A.S.W.; Material of Thrust shaft Steel; Identification Mark on Do. No. 163 A.S.W.; Material of Tunnel shafts Steel; Identification Marks on Do. No. 163 A.S.W.; Material of Screw shafts Steel; Identification Marks on Do. No. 163 A.S.W.; Material of Steam Pipes Steel & Copper; Test pressure 600 lb. & 400 lb.

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: Darban 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 L.M.C. 1:20 in the Register Book.

Mean speed on Trial in light condition = 14.683 knots.

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 1:20 F.D.

Handwritten signatures and dates: J.W.D., 6/4/20, P.P.R.

The amount of Entry Fee ... £ 300 : When applied for, 17th Feb. 1920. Special ... £ 852 : When received, 21st Feb. 1920. Donkey Boiler Fee ... £ : Travelling Expenses (if any) £ :

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

Committee's Minute FRI. APR. 9 1920

Assigned + L.M.C. 1:20 F.D.

CERTIFICATE WRITTEN

No. in g. Book on the Iron or Steel Built at Na Osaka Sh. No. 330 Electric

DESCRIPTION OF DYNAMO,

One set of a com vertical capacity of Dynamo 15 There is Dynamo fixed On position of Main Switch Board positions of auxiliary switch board two in steering

cut outs are fitted on main su circuits Yes and vessel is wired on the double re the cut outs of non-oxidizable re all cut outs fitted in easily ac are permanent instructions re all switches and cut-outs cons

total number of lights provided Forward Circuit midship fore aft

Machinery space Must head light with Side light with one more signal light Curgo Four are lights, what protection is

DESCRIPTION OF CABLES.

in cable carrying 150 anch cables carrying 24.48 anch cables carrying 9.39 nds to lamps carrying .21 Curgo light cables carrying 1.68

DESCRIPTION OF INSULAT

res and cables are com other coated tape, a armoured with nts in cables, how made, insu submain board an nts in cast iron bo

all the joints of cables tho made in bunkers, cargo sp there any joints in or bran

are the cables led throu protected by lead ca



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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.