

REPORT ON MACHINERY.

No. 1278

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.

(Number of Visits 81)

on the

s.s. "Atlas Maru"

Gross 7342

Net 4467

Master A. Ueda Built at Nagasaki By whom built Mitsubishi Josen Kaisha When built 1920

Engines made at Nagasaki By whom made Mitsubishi Josen Kaisha when made 1920

Boilers made at Nagasaki By whom made Mitsubishi Josen 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 as per rule 15.911 Material of screw shaft as fitted 16.4" 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 as per rule 14.541 Dia. of Crank shaft journals as per rule 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 Bellows Duplex 10" x 12" x 12" 2 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. 3 Hold 2 @ 3 1/2" No. 4 Hold 2 @ 3 1/2" No. 5 Hold 2 @ 3 1/2" No. 6 Hold 2 @ 3 1/2" Tunnel well 1 @ 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.

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Colville & Sons, and Beardmore & Co.

J.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 1/2" 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 plate 85.0 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 1/2" No. and Description of Furnaces in each boiler Suspension Material Steel Outside diameter 4' 0 3/4"

Length of plain part top bottom Thickness of plates crown 21 bottom 32 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 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 3/4" 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 3/32" Pitch of stays 1' 6" x 1' 7 1/2" How are stays secured Double nuts 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" double Length as per rule 2' 11 1/2" Distance apart 8' 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 % 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

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

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

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

IS A DONKEY BOILER FITTED?

No.

If so, is a report now forwarded?

pt. 13.

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, $\frac{1}{2}$ 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, $\frac{1}{2}$ total number of condenser tubes, $\frac{1}{2}$ 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, T, 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.
Manufacturers.

1919
Dates of Survey while building
During progress of work in shops --
During erection on board vessel --
Total No. of visits
81
Is the approved plan of main boiler forwarded herewith Yes

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 9.12.19 Screw shaft 9.12.19 Propeller 16.1.20

Stern tube 11.12.19 Steam pipes tested 6.1.20 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 Jam 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? Yes Is the flash point of the oil to be used over 150° F. Yes

Have the requirements of Section 49 of the Rules been complied with? Yes If so, state name of vessel "Darban Maru"

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 Knot.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 1.20 F.D.

Signature: J. D. 6/4/20

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) £

Committee's Minute FRI APR 9 1920

Assigned + L.M.C. 1.20 F.D.

Signature: A. S. Williamson

Engineer Surveyor to Lloyd's Register of Shipping

Signature: J. D.

Signature: J. D.

Signature: J. D.

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