

# REPORT ON MACHINERY.

No. 1284

TUE MAY 25 1920

Received at London Office

Date of writing Report 1<sup>st</sup> April 1920 When handed in at Local Office 1<sup>st</sup> April 1920 Port of NAGASAKI.

No. in Survey held at NAGASAKI. Date, First Survey 24<sup>th</sup> May 1919 Last Survey 16<sup>th</sup> March 1920

Reg. Book. on the "Dakar Maru" (Number of Visits 84)

Tons <sup>Gross</sup> 7170  
<sup>Net</sup> 4384  
When built 1920

Master M. Furukishi Built at Nagasaki By whom built Mitsubishi Gosen Kaisha

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

Boilers made at Nagasaki By whom made Mitsubishi Gosen Kaisha when made 1920

Registered Horse Power Owners Nippon Gosen Kaisha Port belonging to Tokio

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 80 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 moceable 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 2 Feed duplex 10 1/2" x 8 1/2" x 21" No. and size of Suctions connected to both Bilge and Donkey pumps 1 Ballast duplex 10" x 12" x 12"

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 well 1 @ 3"

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 Rock.

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.

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 B) Manufacturers of Steel David Colville & Sons 3.S.B.

Total Heating Surface of Boilers 7725.9 sq. ft. Is 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 30.1.20 No. of Certificate 101

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. ins. 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 15'0" Length 12'0" Material of shell plates Steel

Thickness 1 7/8" Range of tensile strength 28632 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"

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

plate 85.0% 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 21" Thickness of plates crown 3 1/2" Description of longitudinal joint Welded No. of strengthening rings ✓

bottom 3 1/2" Working pressure of furnace by the rules 219 lbs. Combustion chamber plates: Material Steel Thickness: Sides 1 1/2" Back 1 1/2" Top 1 1/2" Bottom 1 5/8"

Pitch of stays to ditto: Sides 9 3/8" x 7 3/4" 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. ins. Area supported by each stay 74 sq. ins. Working pressure by rules 246 lbs. End plates in steam space:

Material Steel Thickness 1 9/32" Pitch of stays 1'6" x 1'7 3/4" How are stays secured Double nuts Working pressure by rules 217 lbs. Material of stays Steel

Area at smallest part 7.67 sq. ins. Area supported by each stay 380 sq. ins. 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 1/4" 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 1/4" Working pressures by rules 211 lbs. Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 10 1/2" x 7 1/8" double Length as per rule 2'11 1/2" Distance apart 8" x 8 1/2" Number and pitch of stays in each 30 @ 13"

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 ✓

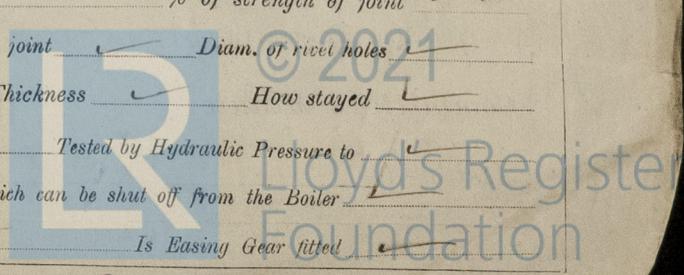
Pitch of rivets ✓ Working pressure of shell by rules ✓ Crown plates ✓ Thickness ✓ How stayed ✓

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 ✓

009278-009286-0129



IS A DONKEY BOILER FITTED?

No.

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—1 H.P. valve spindle, 1 L.P. valve spindle, 2 eccentric rods, 1 set each of H.P. & L.P. piston packing rings, 1 set each of metallic packings for piston rods & valve spindles, 1 complete set of top & bottom brass bolts for one connecting rod, 1/20 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 air pump valves, 3 cylinder escape valve springs, 1 complete set of valves & seats for feed & bilge pumps, 1 complete set of valves & seats 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 lbs. of assorted steel plates, 30 lbs. of assorted steel bars, 1 crank shaft, 1 propeller shaft, 2 propeller blades & and spare gear for auxiliary machinery.

The foregoing is a correct description,

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

*M. Yamaguchi* Manufacturer.

Table with columns for Dates of Survey while building, During progress of work in shops, and During erection on board vessel. Includes dates from 1919 to 1920 and a total number of visits (84).

Is the approved plan of main boiler forwarded herewith  Yes.

Table listing Dates of Examination of principal parts: Cylinders, Slides, Covers, Pistons, Rods, Connecting rods, Crank shaft, Thrust shaft, Tunnel shafts, Screw shaft, Propeller, Stern tube, Steam pipes tested, Engine and boiler seatings, Engines holding down bolts, Completion of pumping arrangements, Boilers fixed, Engines tried under steam, Completion of fitting sea connections, Stern tube, Screw shaft and propeller, Main boiler safety valves adjusted, Thickness of adjusting washers, Material of Crank shaft, Identification Mark on Do., Material of Thrust shaft, Identification Mark on Do., Material of Tunnel shafts, Identification Marks on Do., Material of Screw shafts, Identification Marks on Do., Material of Steam Pipes, Solid drawn steel, Test pressure 600 lbs.

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 *S.S. Durban 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 3.20** in the Register Book.

Mean speed on Trial when 's-loaded = 15.238 knots.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 3.20 F.D.

*AW* 27/5/20 *A.F.R.*

Table with columns for The amount of Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses (if any), and When applied for/When received.

*A.S. Williamson* Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE JUN. 8 1920 Assigned + L.M.C. 3.20 70

Certificate (if required) to be sent to Nagasaki office

