

REPORT ON MACHINERY.

No. 1284

TUE MAY 25 1920

Received at London Office

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

No. in Survey held at NAGASAKI.

Date, First Survey 24th May 1919 Last Survey 16th March 1920

Reg. Book. on the "Dakar Maru"

(Number of Vols. 84)

Gross	7170
Net	4384
When built	1920

Master Mr. 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 as per rule 15.911" Material of steel
 as fitted 16.2" 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 6'0"

Dia. of Tunnel shaft as per rule 14.521" 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 2 Feed Sump 10 1/2" x 8 1/2" x 21"
 1 Ballast Sump 10" x 12" x 12"
 1 G.S. 7" x 5" x 7"

In Engine Room 3 @ 3 1/2" No. and size of Suctions connected to both Bilge and Donkey pumps
 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 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 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 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% 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 3 Morrison's Suspension Material Steel Outside diameter 4'0 3/4"

Length of plain part top 21" crown 32" 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 3/8" x 7 3/4" 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. ins. Area supported by each stay 74 sq. ins. 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 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 1/2" Length as per rule 2'11 1/2" Distance apart 8" x 8 1/2" Number and pitch of stays in each 30 stays

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, $\frac{1}{2}$ 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 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, $\frac{1}{2}$ total number of condenser tubes, $\frac{1}{2}$ total number of condenser ferrules, 3 escape 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.

Mamagata

Manufacturer.

1919 May 24, July 7, 11, 22, 25, Sept. 2, 4, 6, 8, 11, 15, 17, 19, 20, 23, 30, Oct. 6, 23, 30, Nov. 4, 6, 1920 Jan. 6, 7, 8, 9, 12, Feb. 2, 3, 4, 5, 6, 7, 12, 13, 14, 16, 17, 18, 19, 20, 21, 24, 25, 27, 28, March 1, 2, 4, 16.

Dates of Survey while building: During progress of work in shops -- 20, 21, 22, 24, 27, 28. Dec. 2, 3, 4, 5, 6, 9, 10, 12, 16, 17, 18, 19, 20, 22, 23, 24, 1920 Jan. 6, 7, 8, 9, 12, Feb. 2, 3, 4, 5, 6, 7, 12, 13, 14, 16, 17, 18, 19, 20, 21, 24, 25, 27, 28, March 1, 2, 4, 16.

During erection on board vessel -- 27, 28, March 1, 2, 4, 16.

Total No. of visits 84

Is the approved plan of main boiler forwarded herewith *Yes.*

Dates of Examination of principal parts—Cylinders 19. 1. 20 Slides 17. 2. 20 Covers 19. 1. 20 Pistons 17. 2. 20 Rods 17. 2. 20

Connecting rods 30. 1. 20 Crank shaft 21. 1. 20 Thrust shaft 21. 1. 20 Tunnel shafts 21. 1. 20 Screw shaft 12. 1. 20 Propeller 5. 2. 20

Stern tube 19. 1. 20 Steam pipes tested 23. 1. 20 Engine and boiler seatings 23. 1. 20 Engines holding down bolts 19. 2. 20

Completion of pumping arrangements 28. 2. 20 Boilers fixed 18. 2. 20 Engines tried under steam 2. 3. 20

Completion of fitting sea connections 16. 2. 20 Stern tube 12. 2. 20 Screw shaft and propeller 13. 2. 20

Main boiler safety valves adjusted 28. 2. 20 Thickness of adjusting washers *Jamb nuts*

Material of Crank shaft *Steel* Identification Mark on Do. *No 166 A.S.W.* Material of Thrust shaft *Steel* Identification Mark on Do. *No 166 A.S.W.*

Material of Tunnel shafts *Steel* Identification Marks on Do. *No 166 A.S.W.* Material of Screw shafts *Steel* Identification Marks on Do. *No 166 A.S.W.*

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 $\frac{1}{2}$ loaded = 15.238 knots.

It is submitted that this vessel is eligible for THE RECORD. **LMC 3.20 F.D.**

BYE 27/5/20

Sur

A.F.R.

The amount of Entry Fee *2/6* 30/- : When applied for, *12th March 1920*

Special *M* 852/- : When received, *16th March 1920*

Donkey Boiler Fee *£* : *a.s.w.*

Travelling Expenses (if any) *£* : *16th March 1920*

a.s.w.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE JUN. 8 1920

Assigned

+ LMC 3.20 70



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