

REPORT ON MACHINERY.

No. 4186

Received at London Office

Date of writing Report Dec. 22nd 1923 When handed in at Local OfficePort of KOBE

MON. 28 JAN. 1924

No. in Survey held at KOBE
Reg. Book.Date, First Survey Feb. 27th 1920 Last Survey Dec. 20th 1923on the Single Screw Steamer "BORDEAUX MARU."(Number of Visits 119)Tons { Gross 6567
Net 4104Master ✓ Built at Kobe By whom built Kawasaki Dockyard Co Ltd When built 1923Engines made at Kobe By whom made ditto when made 1923Boilers made at Kobe By whom made ditto when made 1923Registered Horse Power NHP. 746 Owners

Port belonging to

Shaft Horse Power at Full Power 4600 SHP @ 85 RPM Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

TURBINE ENGINES, &c. Description of Engines HP, IP & LP BROWN CURTIS TURBINES WITH DOUBLE RED GEAR No. of Turbines THREE

Diameter of Rotor Shaft Journals, H.P. 3 1/2, I.P. 4 1/4, L.P. 8 Diameter of Pinion Shaft 1st Redn HP = 5 1/2, 2nd Redn HP = 15
Diameter of Journals 1st Redn 5 1/2, 2nd Redn 15 Distance between Centres of Bearings { HP = 3 1/2, LP = 3 3/4 Diameter of Pitch Circle 1st Redn HP = 2.998, LP = 13.711

Diameter of Wheel Shaft 20" to 18" Distance between Centres of Bearings 8' 8 1/2" Diameter of Pitch Circle of Wheel 123.618"

Width of Face 50" Diameter of Thrust Shaft under Collars 16" (Rule dia 15.28") Diameter of Tunnel Shaft as per rule 15 1/8 as fitted 15 1/8

No. of Screw Shafts ONE Diameter of same as per rule 16.993 Diameter of Propeller 18'-0" Pitch of Propeller 20'-0" (set for trial) adjustable to 23'-0"

No. of Blades 4 State whether Movable Yes Total Surface 120 SQ. FT. (DEVEL) Diameter of Rotor Drum, H.P. ✓ L.P. ✓ Astern ✓

Thickness at Bottom of Groove, H.P. ✓ L.P. ✓ Astern ✓ Revs. per Minute at Full Power, Turbine HP/IP = 3400 Propeller 85
L.P. 1900

NOTE: * OIL PACKING GLAND (KAWASAKI OGAWA TYPE) FITTED AT AFT END OF STERN TUBE. STERN TUBE BUSHES ARE LINED WITH WHITE METAL.

PARTICULARS OF BLADING.

	H. P.			L. P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION									
2ND									
3RD									
4TH									
5TH									
6TH									
7TH									
8TH									

SAME AS
RHINE MARU
KOBE RPT. 3920

No. and size of Feed pumps Two Sets "WEIR'S" 9" WATER x 12" STEAM x 24" STROKE

No. and size of Bilge pumps Gen Serv. 7 1/2 x 5 x 6" dwp + Ballast 10 x 11 x 12" dwp

No. and size of Bilge suction in Engine Room Three 3 1/2" and Independent I.R. Bilge 3 1/2" suction

In Holds, &c. 3 1/2" DTS. in Nos 1, 3 & 4 Holds & in Deep Tank.
4" DTS in No 2 Hold.

No. of Bilge Injections One sizes 16 Connected to condenser, or to circulating pump Circ.P. 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 all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks ALL VALVES except Evap. & Boiler Blow Cocks

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 2'-0" 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 NONE How are they protected ✓

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 dk. platform of Eng. Room.

BOILERS, &c. (Letter for record 5) Manufacturers of Steel Shell plates - Worth & Illinois Steel Other plates & bars etc - Carnegie, Worth, Kawasaki, Fukui & Hojo who
primaries - Amer. Spiral Pipe Works. 35B.

Total Heating Surface of Boilers 7800 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 3. Single ended

Working Pressure 200 lb. Tested by hydraulic pressure to 350 lb. Date of test 6/7/23 14/8/23 21/9/23 No. of Boilers 3 on BOILERS Lloyd's Test No. 142, 143 & 144

Can each boiler be worked separately Yes Area of fire grate in each boiler 63.25 sq. ft. No. and Description of Safety Valves to each boiler Two - Spring loaded Area of each valve 11 sq. in. Pressure to which they are adjusted 205 lb. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 15'-6" Length 12'-0" Material of shell plates STEEL

Thickness 1 3/8" to 1 3/2" Range of tensile strength 28 - 32 tons Are the shell plates welded or flanged ✓ Descrip. of riveting: cir. seams DRG riveted

long. seams DRG BUTT STRAPS Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10" & 5" Lap of plates or width of butt straps 21 7/8"

Per centages of strength of longitudinal joint rivets 97% Working pressure of shell by rules 202 lb. Size of manhole in shell 12" x 16"

Size of compensating ring 33 x 37 x 1 1/2" flg. No. and Description of Furnaces in each Boiler 3. Monson Super Material Steel Outside diameter 47 3/8" at bol. of corrug.

Length of plain part top ✓ crown 11/16" Description of longitudinal joint welded No. of strengthening rings ✓

bottom ✓ Thickness of plates bottom 11/16"

Working pressure of furnace by the rules 212.7 Combustion chamber plates: Material Steel Thickness: Sides 11/16" Back 11/16" Top 11/16" Bottom 7/8"

Pitch of stays to ditto: Sides 8 3/8" x 8 3/8" Back 8 3/4" x 9 1/4" Top 8 1/2" x 8 3/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 214

Material of stays Steel Diameter at smallest part 1 9/16" Area supported by each stay 76 sq. in. Working pressure by rules 226 End plates in steam space ✓

Material Steel Thickness 1 1/16" Pitch of stays 15 1/2" x 17" How are stays secured nuts in int. Working pressure by rules 200 Material of stays Steel

Diameter at smallest part 3" x 6" dwp Area supported by each stay 259.25 sq. in. Working pressure by rules 259 Material of Front plates at bottom Steel

Thickness 1 3/16" Material of Lower back plate Steel Thickness 3/4" with 206.58 Greatest pitch of stays 18" dia Working pressure of plate by rules 269

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 3/2" Material of tube plates Steel Thickness: Front 13/16" with 206.58 Back 13/16" Mean pitch of stays 9 x 8 1/16"

Pitch across wide water spaces 13 3/4" Working pressures by rules 211 for front plate Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 10 1/4" x 1 5/8" Length as per rule 2-11 1/4" Distance apart 8 1/2" Number and pitch of stays in each Three @ 8 7/8"

Working pressure by rules 255 Steam dome: description of joint to shell ✓ % of strength of joint ✓ Diameter of rivet holes ✓ Pitch of rivets ✓

Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diameter of rivet holes ✓ Pitch of rivets ✓

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

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SUPERHEATER. Type *Schmidt* Date of Approval of Plan ☒ Tested by Hydraulic Pressure to *600 lbs* Rpt. 4a.
Date of Test *20/10/23* *24/10/23* *26/10/23* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *Yes*
Diameter of Safety Valve *3"* Pressure to which each is adjusted *208 lbs* Is Easing Gear fitted *Yes*

IS A DONKEY BOILER FITTED? *No* If so, is a report now forwarded? ☒

SPARE GEAR. State the articles supplied:— *See attached Sheet*

The foregoing is a correct description, **Kawasaki Dockyard Co., Ltd.**

Per *S. A. K. Kuroki* Manufacturer.
A. Culatt Secretary.

A. Culatt
Engineer Surveyor to L.R. & S.

Dates of Survey *1920. Feb. 27; Mar. 25, 30; Apr. 10, 22; May 14; June 15, 23; July 16, 23, 26, 28; Aug. 4, 27;*
1921. Jan. 27; Feb. 17; Mar. 3, 26; Apr. 7; 1922. Mar. 22; Apr. 1, 26; May 1, 2, 4, 9, 13, 15, 17, 19; July 14; Oct. 27; Dec. 2
1923. Feb. 24; Mar. 15, 30; Apr. 2, 5, 10, 11, 17, 20, 23, 25, 27, 28, 30; May 1, 4, 10, 15, 17, 19, 21, 22, 30; June 1, 2, 7, 8, 9, 14, 15, 16, 19, 20, 21, 23;
July 3, 6, 7, 11, 12, 16, 24; Aug. 6, 8, 9, 10, 14, 21, 24, 27, 28; Sept. 4, 15, 21, 25, 28, 29; Oct. 1, 2, 4, 5, 9, 10, 20, 24, 2
Nov. 9, 17, 19, 24, 24, 26, 28, 29; Dec. 1, 3, 4, 6, 7, 10, 13, 18, 19, 20.
During progress of work in shops --
During erection on board vessel --
Total No. of visits *119 + Glasgow visits* Is the approved plan of main boiler forwarded herewith *No. Same as Rpt. No. 39*

Dates of Examination of principal parts—Casings *24/8/23; 29/9/23* Rotors *4/9/23; 23/9/23* Blading *23/9/23* Gearing *13/12/23*
Rotor shaft *4/9/23; 25/9/23* Thrust shaft *4-10-23* Tunnel shafts *12-7-23* Screw shaft *28-6-23* Propeller *17/11/23*
Stern tube *15/6/23* Steam pipes tested *19/11/23* Engine and boiler seatings *15/6/23* Engines holding down bolts *3/12/23*
Completion of pumping arrangements *6/12/23* Boilers fixed *3/12/23* Engines tried under steam *overhaul 13/12/23*

Main boiler safety valves adjusted *4/12/23* Thickness of adjusting washers *Lock nuts*
Material and tensile strength of Rotor shaft *S.M. Steel* HP, IP & LP *34-38 tons* Identification Mark on Do. *HP. P.1050; IP. P.1085; LP. P.1111*

Material and tensile strength of Pinion shaft *Nickel Steel* *40 tons* minimum Identification Mark on Do. *HP. 3377; IP. 3459; LP. 325*
Material of Wheel shaft *S.M. Steel* Identification Mark on Do. *HP. 3428; IP. 3428; LP. 3428* Material of Thrust shaft *S.M. Steel* Identification Mark on Do. *HP. 3428; IP. 3428; LP. 3428*

Material of Tunnel shafts *S.M. Steel* Identification Marks on Do. *HP. 3428; IP. 3428; LP. 3428* Material of Screw shafts *S.M. Steel* Identification Marks on Do. *HP. 3428; IP. 3428; LP. 3428*
Material of Steam Pipes *S.D. Steel* Test pressure *600 lbs*

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*
Is this machinery a duplicate of a previous case *Yes* If so, state name of vessel *S/S RHINE MARU. Kobe Rpt 3920*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The Machinery has been made and fitted under Special Survey in accordance with the requirements of the Rules, and the materials and workmanship are good. The Double-Reduction-Gear Pinions, Wheels were forged at Messrs John Brown & Co's Sheffield Works, and finished at their Clydebank Works. See Glasgow Report No. 40754. The Machinery worked satisfactorily on trial, and is eligible in my opinion for the notation LMC. 12.23, and Fitted for Oil Fuel 12.23, F.P. above 150°F. The approved plan of "Oil Pumping Arrangement" was sent with the Report on S/S Rhine Maru No 3920.*

The amount of Entry Fee *YEN. 60*
Special *1685*
Donkey Boiler Fee *See Hull Rpt*
Travelling Expenses (if any) *See Hull Rpt*
When applied for, *Dec. 20th 1923*
When received, *Dec. 28th 1923*

A. Culatt
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. FEB 11 1924*

Assigned *+ Lmc. 12.23 Oil F.P. 150°F*
Fitted for oil fuel 12.23 F.P. above 150°F