

# REPORT ON MACHINERY.

No. 4186

Received at London Office

Date of writing Report Dec. 22<sup>nd</sup> 1923 When handed in at Local Office

Port of KOBE

MON. 28 JAN. 1924

No. in Survey held at KOBE

Date, First Survey Feb. 27<sup>th</sup> 1920 Last Survey Dec. 20<sup>th</sup> 1923

Reg. Book. on the Single Screw Steamer "BORDEAUX MARU."

(Number of Visits 119)

Tons } Gross 6567  
Net 4104

Master  Built at Kobe By whom built Kawasaki Dockyard Co Ltd When built 1923

Engines made at Kobe By whom made ditto ditto when made 1923

Boilers made at Kobe By whom made ditto ditto when made 1923

Registered 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 REDY GEAR No. of Turbines THREE

Diameter of Rotor Shaft Journals, H.P. 3 1/2, I.P. 4 3/4, 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' 2 1/4, LP = 3' 3 1/4 Diameter of Pitch Circle 1st Redn HP = 8.998, 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 15.88") 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, as fitted 17" 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. as per rule, L.P. astern

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

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 3920  
AS KOBE RPT.

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 dup + Ballast 10 x 11 x 12 dup

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 Swaps + 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 Yes

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; furnaces - Amer Special Pipe who. 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 Certificates 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 + 3/32 Range of tensile strength 28 - 32 tons Are the shell plates welded or flanged Yes Descrip. of riveting: cir. seams DR riveted

long. seams DBLE 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"

plates 85%

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

Length of plain part top 11" crown 11" Description of longitudinal joint welded No. of strengthening rings 1

bottom 11"

Working pressure of furnace by the rules 212.7 Combustion chamber plates: Material Steel Thickness: Sides 1/16 Back 1/16 Top 1/16 Bottom 7/8

Pitch of stays to ditto: Sides 8 3/8 x 8 7/8 Back 8 7/8 x 9 1/4 Top 8 1/2 x 8 7/8 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 1/16 Pitch of stays 15 1/2 x 17 How are stays secured nuts in steam space Working pressure by rules 200 Material of stays Steel

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

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

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 Yes % of strength of joint Yes Diameter 20 1/2

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

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

**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 of **Kawasaki Dockyard Co., Ltd.**

Per J. Selat Manufacturer. Aulatt Secretary. 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  
 During progress of work in shops -- 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;  
 During erection on board vessel --- 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  
 Total No. of visits 119 + Glasgow visits Is the approved plan of main boiler forwarded herewith No. Same as Rhine Maru Rpt No. 39  
See "Rpt no 40754"

Dates of Examination of principal parts—Casings HP+IP. LP. 24/8/23; 29/9/23 Rotors HP IP LP. 4/9/23; 23/9/23 Blading 25/10/23 Gearing 13/12/23  
 Rotor shaft HP, IP, LP. 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. LP. 3459; 2nd LP. 325

Material of Wheel shaft S.M. Steel Identification Mark on Do. LLOYDS NO. 3428 Material of Thrust shaft S.M. Steel Identification Mark on Do. P.1236; L.R. N. 411; AW. 4-10-23  
 Material of Tunnel shafts S.M. Steel Identification Marks on Do. LLOYDS NO. 148 A-F; AW. 12-7-23 Material of Screw shafts S.M. Steel Identification Marks on Do. working's P.B. 170; LLOYDS NO. 412; 28-6-23; AW. R

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 5/5 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, Wals 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°Fah". The approved plan of "Oil Pumping Arrangement" was sent with the Report on 5 Rhine Maru No 3920.

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

Aulatt  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. FEB 11 1924

Assigned + Lmb. 12.23 O.G. 90, Fitted for oil fuel 12.23 F.P. above 150°

