

REPORT ON MACHINERY.

No. 2836.

Received at London Office

WED. JUL 7 1920

Date of writing Report 25th May 1920 When handed in at Local Office

Port of Kobe

No. in Survey held at Kobe
Reg. Book.Date, First Survey 18th Oct 1919 Last Survey 12th May 1920

(Number of Visits 62.)

on the Steel Single Screw Steamer "BELGIUM MARU"

Tons { Gross 5872.89
Net 4253.90

Master K. Hayashi. Built at Kobe

By whom built Kawasaki Dockyard Co. When built 1920

Engines made at Kobe

By whom made Kawasaki Dockyard Co. Ltd. when made 1920

Boilers made at do

By whom made do when made 1920

Registered Horse Power

Owners The Kawasaki Kisen Kaisha Ltd. Port belonging to Kobe

Nom. Horse Power as per Section 28 437 440

Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes

ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders Three No. of Cranks 3

Dia. of Cylinders 26" 43 1/2" 72" Length of Stroke 48" Revs. per minute 70 Dia. of Screw shaft as per rule 15.41" Material of steel as fitted 16" screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liner Is the after end of the liner made water tight

in the propeller boss 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 5'-5 1/4"

Dia. of Tunnel shaft as per rule 13.48" Dia. of Crank shaft journals as per rule 14.15" Dia. of Crank pin 14 3/4" Size of Crank webs 9 1/2" x 20 1/2" Dia. of thrust shaft under collars 14 3/8" Dia. of screw 17'-6" Pitch of Screw 19'-0" Mean No. of Blades 4 State whether moveable yes Total surface 100 sq. ft.

No. of Feed pumps One Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work yes (with Weir feed)

No. of Bilge pumps Two Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work yes

No. of Donkey Engines Three Sizes of Pumps Ballast 9 1/2" x 7" x 24" Two No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 3 1/2" One 3 1/2" to Tunnel Well No. 1, 3 + 4 Hold each two 3 1/2" No. 2 Hold two 4"

No. of Bilge Injections 1 sizes 9" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room of 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 Larger valves Smaller 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 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 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 upr platform of Eng. Rm.

OILERS, &c.—(Letter for record S.) Manufacturers of Steel Illinois St. Co. Carnegie St. Co. Am. Spiral Co. 2304.5 2252 x 2 + 1132 (Aux. Bl.) Michale Steel Co. Wash. D.C. 2SB & 1A4 x SB (Furnaces)

Total Heating Surface of Boilers 55636 sq. ft. Is Forced Draft fitted yes No. and Description of Boilers Two S.C. + Aux. S.C. Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 5-3-20 10-3-20 No. of Certificate 1101 1102 Lloyd's Test No. 1101 1102

Can each boiler be worked separately yes Area of fire grate in each boiler 60 1/2 sq. ft. No. and Description of Safety Valves to each boiler Two Spring loaded Area of each valve 3 3/4" dia. 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 12" Mean dia. of boilers 14'-6" Length 12'-0" Material of shell plates steel

Thickness 1 5/16" Range of tensile strength 2678 to 32000 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Ends Doubl.

long. seams Double rivets Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 8 3/4" x 4 3/8" Lap of plates or width of butt straps 19 5/8" x 1 1/4"

Per centages of strength of longitudinal joint rivets 95.84 plate 84.28 Working pressure of shell by rules 201 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring (1 1/2" flange) 1 3/8" No. and Description of Furnaces in each boiler 3 Morrison's Material steel Outside diameter 48 1/4"

Length of plain part top 2 1/2" Thickness of plates bottom 3/32" Description of longitudinal joint Weld Suspension No. of strengthening rings

Working pressure of furnace by the rules 221 lbs. Combustion chamber plates: Material steel Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 7/8"

Pitch of stays to ditto: Sides 8 1/2" x 8 1/2" Back 8 1/2" x 9" Top 8 1/2" x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 203 lbs.

Material of stays steel Area at smallest part 2.1 sq. ft. Area supported by each stay 8 1/2" x 9 1/2" Working pressure by rules 230 lbs. End plates in steam space:

Material steel Thickness 1 5/16" Pitch of stays 19 3/4" x 20 1/2" How are stays secured Double nuts + small washers Working pressure by rules 202 lbs. Material of stays steel

Area at smallest part 10 sq. ft. Area supported by each stay 19 3/4" x 20 1/2" Working pressure by rules 260 lbs. Material of Front plates at bottom steel

Thickness 1 3/16" Material of Lower back plate steel Thickness 3/4" Greatest pitch of stays 13 1/2" at wide Working pressure of plate by rules 232 lbs.

Diameter of tubes 3 1/4" Pitch of tubes 4 1/6" x 4 5/16" Material of tube plates steel Thickness: Front 1" Water space 1 3/16" Mean pitch of stays 8 3/4"

Pitch across wide water spaces 13 3/4" + 5/8" Working pressures by rules 240 lbs. Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 10 3/4" x 13 1/6" (2) Length as per rule 34 1/2" Distance apart 9 3/8" Number and pitch of stays in each 3 @ 8 1/2"

Working pressure by rules 220 lbs. Steam dome: description of joint to shell None % 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

UPPERHEATER. 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

If so, is a report now forwarded? **Yes**

Four Main bearing bolts + nuts.	✓ Set packing rings + springs each piston.	Centrifugal pump impeller
Two Crank-pin bolts + nuts	✓ Set junk ring bolts + nuts.	Shaft + nut.
Two Crosshead bolts + nuts	✓ Set of packing for each piston rods + Valve rods.	A.P. rod + nut.
Set coupling bolts + nuts	✓ Propeller shaft with nut.	3 Safety valve springs
Set Feed + Bldg pump valves.	✓ 1 Feed Check valve + Seat.	Cond. Blr. tubes etc.
Assorted bolts, nuts + iron.	✓ Slide valve spindle each size.	1 Set A.P. head valves

Kawasaki Dockyard Co., Ltd.,

Manufacturer.

		Per _____	Secretary.	1920
Dates of Survey while building	During progress of work in shops - -	1919.	Oct 18; Nov 7, 27; Dec 4, 8, 13, 17, 22, 25, 27;	Jan 9, 14, 17, 19, 22, 24, 27, 28, 29, 30; Feb 2, 3, 4, 7, 9, 10, 12, 13, 14
	During erection on board vessel - - -		Feb 17, 18, 19, 21, 23, 24, 26, 28; Mar 1, 3, 5, 8, 9, 10, 13, 15, 17, 19, 20, 26;	Apr. 6, 9, 10, 15, 17, 19, 20, 28, 29; May 1, 3, 10
	Total No. of visits	62.		
			Is the approved plan of main boiler forwarded herewith	Yes

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 19-3-20 Slides 20-4-20 Covers 10-4-20 Pistons 10-4-20 Rods 17-4-2

Connecting rods 20-3-20 Crank shaft 17-8-20 Thrust shaft 3-3-20 Tunnel shafts 8-8-20 Screw shaft 8-3-20 Propeller 17-3-20
Shaft " 1-5-20

Stern tube 19-3-20 Steam pipes tested 5-3-20 Engine and boiler seatings 26-3-20 Engines holding down bolts 19-4-20

Completion of pumping arrangements 29-4-20 Boilers fixed 19-4-20 Engines tried under steam 1-5-20 overhaul 3-

Completion of fitting sea connections 26-3-20 Stern tube 22-3-20 Screw shaft and propeller 26-3-20

Main boiler safety valves adjusted 28-4-20 Thickness of adjusting washers Locknuts (Sealed by Government Insp)

Material of Crank shaft Steel Identification Mark on Do. 7-3-20 Material of Thrust shaft Steel Identification Mark on Do. 7-3-20

Material of Tunnel shafts 7 Steel Identification Marks on Do. 407DS
8-3-20 Material of Screw shafts 7 Steel Identification Marks on Do. (PA: 4207)
working

Material of Steam Pipes S. G. Steel ✓ Wt. 4. Test pressure 600 lbs. T.S. } 8-3
Wt.

Is an installation fitted for burning oil fuel No. Is the flash point of the oil to be used over 150°F. No.

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. WAR QUEEN (Kobe Reg. No. 2009)

General Remarks (State quality of workmanship, opinions as to class, &c.

✓ S/S. SWEDEN MARU (" " " 2780
S/S. NORWAY MARU (" " " 2808

The Tunnel Shafting was forged & tested at Oshima Steel Works, Tokyo and finished at Kawasaki Dockyard Co.

The Machinery has been made + fitted under special Survey in accordance with the requirements of the Rules and the materials and workmanship are good.

The Machinery is eligible in my opinion for the notation
 ✠ LMC 5-20 in the Register Book.

It is submitted that
this vessel is eligible for
THE RECORD + LMC 5.20 F.D.

The amount of Entry Fee	... Yen	: 30.-	When applied for,
Special £	735.-	18 th May 1920
AUX Boiler Fee	... £	Included	When received,
Travelling Expenses (if any) £	: 20.-		21 st May 1920

Committee's Minute

Assigned

**MACHINERY CENT
UNITED**

+ Lth 5:20 F. S.

Engineer Surveyor to Lloyd's Register of Shipping.

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Lloyd's Register
Foundation