

## REPORT ON MACHINERY

No. 3165

THU. 30 JUN. 1921

Date of writing Report May 27<sup>th</sup> 1921 When handed in at Local Office

Port of Kobe

No. in Survey held at  
Reg. Book.

Kobe

Date, First Survey Feb. 3<sup>rd</sup> 1920Last Survey May 13<sup>th</sup> 1921

(Number of Visits 105.)

on the Steel Single Screw Steamer "BALTIMORE MARU"

Master M. NAITO Built at Kobe

By whom built Kawasaki Dockyard Co. Ltd. When built 1921

Engines made at Kobe

By whom made

Kawasaki Dockyard Co. Ltd.

when made 1921

Boilers made at do

By whom made

do

when made 1921

Registered Horse Power

Owners

do

Port belonging to Kobe

Nom. Horse Power as per Section 28 578

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes

ENGINES, &amp;c.—Description of Engines TRIPLE EXPANSION

No. of Cylinders THREE

No. of Cranks 3

Dia. of Cylinders 28" 46 1/2" 78" Length of Stroke 54"

Revs. per minute 85 MAX. 70 NORM.

Dia. of Screw shaft

as per rule 16.65

Material of steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

No liners

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 71"

Dia. of Tunnel shaft as per rule 14-8

as fitted 15"

Dia. of Crank shaft journals as per rule 15-56

as fitted 15 3/4"

Dia. of Crank pin 16"

Size of Crank webs 29 x 10" Dia. of thrust shaft under

collars 15 3/4" Dia. of screw 18'-0" Pitch of Screw 21'-6"

No. of Blades 4

State whether moveable

Yes Total surface 120<sup>sq</sup> developed

No. of Feed pumps One Diameter of ditto 5 1/4" Stroke 27"

Can one be overhauled while the other is at work

Yes (with Weir feed pump)

No. of Bilge pumps Two Diameter of ditto 5 1/4" Stroke 27"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines Four

Sizes of Pumps

BALL PUMP: 10 x 11 x 12 dupl.  
GEN. SERV: 7 1/2 x 5 x 6  
WEIR FEED: 10 x 8 x 24 TWG  
OIL TRANSFER: 10 x 7 x 10 dupl.  
OIL FUEL: 7 x 5 x 12 SING.

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 3 1/2"

In Holds, &amp;c. Nos. 1, 3 &amp; 4 Holds - two 3 1/2"; No 2 - two 4"

In ENG. RM. WELL - One 3 1/2"; In COFFER DAM - Aft. of No. 3 D. B. TANK - one 3 1/2"; In TUNNEL WELL - one 3 1/2"

No. of Bilge Injections 1 sizes 12 3/4"

Connected to condenser, or to circulating pump

Is a separate Donkey Suction fitted in Engine room &amp; size

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

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 21" 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

What pipes are carried through the bunkers

Bilge Suctions

How are they protected

Wood covering

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 E. R. platform at Up. Deck.

BOILERS, &amp;c.—(Letter for record S)

Manufacturers of Steel

ILLINOIS STEEL CO., CARNEGIE STEEL CO., KAWASAKI FUKUAI & HYOGO  
WORKS (Kobe), JOHN MARSHALL CO. (FURNACES)Total Heating Surface of Boilers 7800<sup>sq</sup>

Is Forced Draft fitted

Yes

No. and Description of Boilers Three SINGLE ENDED.

Working Pressure 200 lbs.

Tested by hydraulic pressure to

400 lbs.

Date of test

No. of Certificate

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

63.25<sup>sq</sup>

No. and Description of Safety Valves to

each boiler Two SPRING LOADED

Area of each valve

11<sup>sq</sup>

Pressure to which they are adjusted

205 lbs. Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork

2'-3"

Mean dia. of boilers

15'-7 3/8"

Length 12'-0" Material of shell plates

Thickness 1 3/8" x 3/32"

Range of tensile strength

28-32 tons

Are the shell plates welded or flanged

No

long. seams Double riveted

Diameter of rivet holes in long. seams

1 1/2" x 1/32"

Pitch of rivets

9 3/4" x 4 3/8"

Lap of plates or width of butt straps

21 3/8"

Per centages of strength of longitudinal joint

rivets 100  
plate 84.2

Working pressure of shell by rules

202 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

Material

Steel Outside diameter 50 1/4"

Length of plain part

Thickness of plates

crown 1 1/6"  
bottom 1 1/6"

Description of longitudinal joint

Welded

Working pressure of furnace by the rules

216 lbs.

Combustion chamber plates: Material

Steel

Thickness: Sides 1 1/6" Back 1 1/6" Top 1 1/6" Bottom 7/8"

Pitch of stays to ditto: Sides 8 3/8" x 8 3/8"

Back 9 1/4" x 8 3/8"

Top 8 3/8" x 8 3/8"

If stays are fitted with nuts or riveted heads

nuts

Material of stays Steel

Area at smallest part

2.10<sup>sq</sup>

Area supported by each stay

78.13<sup>sq</sup>

Material Steel Thickness 1 1/6"

Pitch of stays

17 x 15 1/4"

How are stays secured

Doub. nuts + washers

Area at smallest part 6.33<sup>sq</sup>

Area supported by each stay

260.8<sup>sq</sup>

Working pressure by rules

252 lbs.

Thickness 13/16"

Material of Lower back plate

Steel

Thickness 3/4" with double 5/8"

Greatest pitch of stays 9 1/4" x 8 3/8"

Diameter of tubes 9 BWS

Pitch of tubes

4 1/2" x 4 1/2"

Material of tube plates

Steel Thickness: Front 13/16" with double 5/8" Back 13/16"

Pitch across wide water spaces 13 3/4"

Working pressures by rules

240 lbs.

Girders to Chamber tops: Material

Steel

thickness of girder at centre two 10 1/4" x 13/16"

Length as per rule

35 1/8"

Distance apart

8 1/2"

Working pressure by rules 232 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

SUPERHEATER. Type Schmidt

Date of Approval of Plan

Tested by Hydraulic Pressure to

600 lbs.

No. 1 No. 2 No. 3

Date of Test

23-12-20: 27-12-20: 10-1-21

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Yes

Diameter of Safety Valve One 3" for each

Pressure to which each is adjusted

245 lbs.

Relief Valve would not keep tight at a lower adjustment

Is Easing Gear fitted

Yes

Lloyd's Register Foundation

W681-0244



IS A DONKEY BOILER FITTED?

None

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

1 Set packing rings for all pistons + piston valves.	1 Main bearing bolts + nuts.	1 Set A. P head valves.
15 Studs + Nuts for junk rings.	1 Slide valve rod of each size	3 Safety valves springs.
1 pair Eccentric rods.	1 Set feed check valves + seats	1 Set feed + bilge pump valves + Seal
1 propeller shaft with nut.	1 Centrifugal pump impeller + shaft.	Condenser tubes + ferrules, bolts + nuts + etc.
2 bolts + nuts for Conn. rod top + bottom ends.	1 Set crosshead + Crank pin brasses.	Oil burning sprayers + etc.
9 shaft coupling bolts + nuts.	1 Air pump rod + nut.	Superheater tubes etc.

The foregoing is a correct description,

Kawasaki Dockyard Co., Ltd.,

Per

*John Lane*

Manufacturer.

Dates of Survey while building	During progress of work in shops --	1920 Feb. 3, 5, 7, 10, 12, 14; Mar. 4; Apr. 27, 29; May 10, 12, 22, 25, 27; June 22, 24, 27, 29, 31; Aug. 2, 4, 7, 9, 11, 12, 14
	During erection on board vessel --	Aug. 19, 24, 25, 30; Sept. 3, 4, 6, 8, 13, 24, 25, 27, 30; Oct. 6, 7, 12, 14, 19, 22, 25, 29; Nov. 2, 4, 11, 12, 13, 22, 26, 27, 29, 30; Dec. 1, 6, 11, 22, 23, 27; 1921 Jan. 10, 11, 12, 21, 22, 24, 28; Feb. 1, 5, 7, 9, 16, 17, 28; Mar. 9, 23, 28, 31; Apr. 12, 20, 22, 30; May 3, 5, 13.
	Total No. of visits	106

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

" " " donkey " " " "

Dates of Examination of principal parts—Cylinders	26-11-20	Slides	28-2-21	Covers	22-1-21	Pistons	22-4-21	Rods	16-2-21
Connecting rods	16-2-21	Crank shaft	1-12-20	Thrust shaft	29-11-20	Tunnel shafts	25-10-20	Screw shaft	29-11-20
								spare	9-3-21
Propeller	6-12-20								
Stern tube	29-11-20	Steam pipes tested	23-3-21	Engine and boiler seatings	12-1-21	Engines holding down bolts	12-4-21		
Completion of pumping arrangements	23-3-21	Boilers fixed	12-4-21	Engines tried under steam	3-5-21				
				overhaul	5-5-21				
Completion of fitting sea connections	14-12-20	Stern tube	14-12-20	Screw shaft and propeller	22-12-20				
Main boiler safety valves adjusted	12-4-21	Thickness of adjusting washers	Lock nuts						
Material of Crank shaft	Steel	Identification Mark on Do.	LLOYDS 1-12-20 AWB	Material of Thrust shaft	Steel	Identification Mark on Do.	LLOYDS 2-12-20 AWB		
Material of Tunnel shafts	Steel	Identification Marks on Do.	LLOYDS 25-10-20 AWB	Material of Screw shafts	Steel	Identification Marks on Do.	LLOYDS 2-12-20 AWB		
Material of Steam Pipes	Solid Drawn Steel	Test pressure	600 lbs.	spare	PA 739 3-3-21 AWB				
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 duplicate of a previous case	yes	If so, state name of vessel	S/S "FUJI MARU" (Kobe Rpt. No. 3143)						

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 + the materials + workmanship are good. The machinery worked satisfactorily on trial.

The Oil Fuel Suction Piping from Settling tanks to Stockhold Pumps was tested to 50 lbs/sq. inch Water pressure; The Pressure Piping from Pumps to Burners - to 400 lbs/sq. inch.

The Machinery of this vessel is eligible, it is submitted, for the notation **LMC 5-21** and "Fitted for Oil Fuel 5-21 (F.P. above 150°F)"

A Blue print of arrangement of Oil Fuel Piping and Shut-off Valves in C + B. spaces is sent herewith

It is submitted that  
this vessel is eligible for  
**THE RECORD. + LMC 5.21. F1**  
Fitted for Oil Fuel 5.21 FP above 150°F

The amount of Entry Fee ...	Yen 60.-	When applied for,	12th May 1921
Special ...	£ 15.00	When received,	14th May 1921
ENG. STEEL CASTINGS	£ 21.2-		
ENG. STEEL FORGINGS	£ 28.8-		
Travelling Expenses (if any)	£ 30.-		
ELEC. LIGHT INSTN SURVEY	£ 240.-		

Committee's Minute

Assigned

TUE. 12 JUL. 1921  
+ LMC 5.21. F.D.  
Fitted for oil fuel 5.21  
F.P. above 150°F

*Watt*  
7/7/21  
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation