

## REPORT ON MACHINERY.

No. 2417

Received at London Office

TUE 3 JUL 1919

Date of writing Report June 10<sup>th</sup> 1919 When handed in at Local Office 1919 Port of KOBE, JAPAN.  
No. in Survey held at Kobe. Date, First Survey 7<sup>th</sup> Dec 1917 Last Survey 26<sup>th</sup> May 1919  
Reg. Book. on the machinery of the Single Screw Steamer SHANGHAI MARU. (Number of Visits 29) Gross 4103  
(KAWASAKI DOCKYARD No 415) Tons, Net 2524  
Master N. SATO. Built at Kobe By whom built Kawasaki Dockyard Co Ltd. When built 1919.  
Engines made at Kobe By whom made Kawasaki Dockyard Co Ltd. when made 1919.  
Boilers made at Kobe By whom made " " " when made 1919.  
Registered Horse Power 356 Owners Kawasaki Dockyard Co Ltd. Port belonging to Kobe  
Nom. Horse Power as per Section 28 356 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 23½ + 39 + 65" Length of Stroke 48" Revs. per minute max 84 Dia. of Screw shaft as per rule 14.95 Material of Forged Steel  
as fitted 15" 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 63¾" ✓  
Dia. of Tunnel shaft as per rule 12.65 12.69 Dia. of Crank shaft journals as per rule 13.34 Dia. of Crank pin 13½" Size of Crank webs 25½ x 9" Dia. of thrust shaft under  
as fitted 12½" as fitted 13½" shaped.  
collars 13½" Dia. of screw 16½" Pitch of Screw 17'0" to 19'0" No. of Blades 4 State whether moveable Yes Total surface 85 sq ft.  
No. of Feed pumps One Diameter of ditto 4½" Stroke 24" Can one be overhauled while the other is at work Yes with Weir's Independent  
No. of Bilge pumps Two Diameter of ditto 4½" Stroke 24" Can one be overhauled while the other is at work Yes  
No. of Donkey Engines Three Sizes of Pumps Weir's Feed 9½ x 7 x 24" dupl. No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Three 3½" Ballast 10 x 11 x 12" dupl. In Holds, &c. No 1 - 2½" No 2 - 2½" No 3 - 2½"  
In Boiler Room Two 3½" Genl. dky 7½ x 5 x 6" dupl. No 4 - 2½" Tunnel Well - one 3"  
No. of Bilge Injections 1 sizes 7½" Connected to condenser, or to circulating pump Circ. Is a separate Donkey Suction fitted in Engine room & size Yes 3½"  
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 both.  
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 Two 3½" Bilge Sucts from No 1 & 2 Holds. 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 Upper Deck level

BOILERS, &c.—(Letter for record (S) Manufacturers of Steel Illinois Steel Co & Amer. Spiral Pipe Works. (Furnaces)  
Total Heating Surface of Boilers 4610 Is Forced Draft fitted Yes No. and Description of Boilers Two - Single Ended 25B  
Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 24<sup>th</sup> 12<sup>th</sup> - 6-19 No. of Certificate 24/19 324/19 AWS  
Can each boiler be worked separately Yes Area of fire grate in each boiler 60.5 No. and Description of Safety Valves to  
each boiler Two Spring loaded Area of each valve 3¾ 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 18" Mean dia. of boilers 14'6" Length 12'0" Material of shell plates Steel  
Thickness 1½" Range of tensile strength 28-32 tons Are the shell plates welded or flanged Welded Descrip. of riveting: cir. seams dbl riv.  
with 3/4 dbg. long. seams dbl. Straps Diameter of rivet holes in long. seams 1½" Pitch of rivets 8½ x 4½" Lap of plates or width of butt straps 19½ x 1½"  
Per centages of strength of longitudinal joint 84.3 Working pressure of shell by rules 202 Size of manhole in shell 18 x 22  
Size of compensating ring 7½ x flge x 1½" No. and Description of Furnaces in each boiler Three Morrison's Material Steel Outside diameter 48½"  
Length of plain part top 21" Thickness of plates bottom 1/32 Description of longitudinal joint Welded No. of strengthening rings ✓  
Working pressure of furnace by the rules 221 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 7/8"  
Pitch of stays to ditto: Sides 8½ x 8½" Back 8½ x 9" Top 8½ x 9½" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 202  
Material of stays Steel Area at smallest part 2.10 Area supported by each stay 76.5 sq ins Working pressure by rules 247 End plates in steam space:  
Material Steel Thickness 15/16" Pitch of stays 19½ x 20½" How are stays secured dbl nuts Working pressure by rules 202 Material of stays Steel.  
Area at smallest part 10.12 Area supported by each stay 405 sq ins Working pressure by rules 260 Material of Front plates at bottom Steel.  
Thickness 13/16" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 15 x 15" Working pressure of plate by rules 225  
with 3/4 dbg. Diameter of tubes 3½" Pitch of tubes 4½ x 4½" Material of tube plates Steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 8¾"  
Pitch across wide water spaces 13½ x 3½" Working pressures by rules 267 Girders to Chamber tops: Material Steel Depth and  
thickness of girder at centre 10¾ x 12(2) Length as per rule 34½" Distance apart 9½" Number and pitch of stays in each three @ 8½"  
Working pressure by rules 202 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 None 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

601324-0046



IS A DONKEY BOILER FITTED?

No

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

Four Main Bearing Bolts & nuts  
Four Crank-pin do do  
Four Crosshead pin do do  
Set Coupling Bolts & nuts  
Propeller Shaft & nut  
4 Set Junk-ring Bolts & nuts.  
Set Packing Rings & Springs for Pistons.  
Pair Eccentric Rods.  
Valve Rod for each Valve  
Crank pin & Crosshead pin Brasses.  
Air Pump Rod & nut.  
Set AP. Head Valves.  
Set Feed Check Valves & Seats  
Centrif. Impeller & Shaft  
Two Safety-valve Springs  
Set Feed & Bridge P. Valves & Seats  
1/30 Set Condenser Tube, & Gland  
Fire Bars, Assorted Bolts, Nuts & Studs etc.

The foregoing is a correct description,

Kawasaki Dockyard Co., Ltd.

Per

Manama

Manufacturer.

Dates of Survey while building  
During progress of work in shops -- 7<sup>th</sup> Dec 1917, 26<sup>th</sup> Feb 1918, 1<sup>st</sup> Mar '18, 8<sup>th</sup> Apr '18, 15 & 20 May '18, 14<sup>th</sup> Nov '18, 22 & 27 Feb 19, Mar 4, 7, 12, 17, 24, 26<sup>th</sup>;  
During erection on board vessel -- Apr 9, 11, 12, 15, 21, 25<sup>th</sup> May 3, 8, 12, 17, 19, 22, 24 & 26<sup>th</sup> 1919.  
Total No. of visits 29.

Is the approved plan of main boiler forwarded herewith

Yes

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 15-5-18 Slides 20-5-18 Covers 20-5-18 Pistons 11-4-19 Rods 7-12-17  
8-4-18  
Connecting rods 1-3-18 Crank shaft 1-3-18 Thrust shaft 1-3-18 Tunnel shafts 2-2-18 Screw shaft 14-11-18 Propeller 4-3-19  
Stern tube 11-4-19 Steam pipes tested 12-5-19 Engine and boiler seatings 25-4-19 Engines holding down bolts 8-5-19  
Completion of pumping arrangements 17-5-19 Boilers fixed 19-5-19 Engines tried under steam 22<sup>nd</sup> & 24<sup>th</sup> 5-19.  
Completion of fitting sea connections 21-4-19 Stern tube 11-4-19 Screw shaft and propeller 12-4-19  
Main boiler safety valves adjusted 19-5-19 Thickness of adjusting washers Locknut PORT F 7/16 STAR 2 A 5/8  
Material of Crank shaft Steel Identification Mark on Do. LLOYDS 1-3-18 ALJ. E. Material of Thrust shaft Steel Identification Mark on Do. LLOYDS 1-3-18 ALJ. E.  
Material of Tunnel shafts Steel Identification Marks on Do. LLOYDS 26-2-18 ALJ. E. Material of Screw shafts Steel Identification Marks on Do. LLOYDS 14-11-18 ALJ. E.  
Material of Steam Pipes Steel Test pressure 600 lbs  $\square$  water.

Is an installation fitted for burning oil fuel No.

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 No If so, state name of vessel

First Vessel of this design.

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

The Machinery of this

Vessel has been made and fitted under Special Survey in accordance with the requirements of the Rules, and the materials and workmanship are good. It is eligible, in my opinion, for the notation + LMC 5.19.

It is submitted that this vessel is eligible for THE RECORD. + LMC 5.19 FD

RCH. 8.7.19

JWD

Alexander Watt

Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... Yen 30<sup>00</sup>  
Special ... Yen 661<sup>00</sup>  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) Yen 15 : :  
When applied for 29<sup>th</sup> May 1919  
When received 5<sup>th</sup> June 1919

Committee's Minute

FRI JUL 18 1919

Assigned

+ LMC 5.19

MACHINERY CERTIFICATE WRITTEN.

F. D.



© 2021

Lloyd's Register Foundation