

## REPORT ON MACHINERY.

No. 1949

Received at London Office

Date of writing Report Jan. 10/17 When handed in at Local Office 10 Port of Kobe

No. in Survey held at Osaka Date, First Survey 14 Mar. Last Survey 23rd Dec 1916

Reg. Book. on the Steel Single Screw Steamer "Tensho Maru" (Number of Volls 23) Tons } Gross 3185  
Net 1986

Master Jitsuzo Nozawa Built at Osaka By whom built Osaka Iron Works, Ltd. When built 1916-12

Engines made at Osaka By whom made Osaka Iron Works, Ltd. when made 1916

Boilers made at Osaka By whom made do when made 1916

Registered Horse Power 288 Owners Koichiro Kokuma Port belonging to Amagasaki

Nom. Horse Power as per Section 28 288 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 22:37:61 Length of Stroke 42" Revs. per minute 70 Dia. of Screw shaft as per rule 12.8 Material of Steel  
as fitted 13.0 screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight

in the propeller boss yes If the liner is in more than one length are the joints burned no 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 tightly fitted two

liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 4" 8 3/4"

Dia. of Tunnel shaft as per rule 11.2 Dia. of Crank shaft journals as per rule 11.77 Dia. of Crank pin 12" Size of Crank webs 7 3/8 x 23 x 15 Dia. of thrust shaft under

collars 12" Dia. of screw 16" 0" Pitch of Screw 16" 0" No. of Blades 4 State whether moveable no Total surface 73 1/2"

No. of Feed pumps Two Diameter of ditto 3 1/4" Stroke 24" Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 3 1/2" Stroke 24" Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps Bal 7" 8 1/2 x 9 Beer No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 3" in Blr. rm. two 3" In Holds, &c. Two 3" in each hold. After well 3 1/2"

Tunnel well 2 1/2"

No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump yes 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 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 fired 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 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 grating of E. Rm.

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Parkhead, Leeds forge

Total Heating Surface of Boilers 3824 Is Forced Draft fitted yes No. and Description of Boilers Two Single ended

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 26 June 1916 No. of Certificate LLOYD'S TEST 360 lbs hyd. pr. 26/6/16 A.L.S. R

Can each boiler be worked separately yes Area of fire grate in each boiler 45 No. and Description of Safety Valves to

each boiler Two Spring loaded Area of each valve 3 1/2 dia Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 10" Mean dia. of boilers 13" 6" Length 11" 6" Material of shell plates Steel

Thickness 1 3/32" Range of tensile strength 28 3/4" 32" Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Doub. riv

long. seams Sub riv Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 1/8 x 4 1/16" Lap of plates or width of butt straps 7 3/4 x 1"

Per centages of strength of longitudinal joint 92.9 x 88.5 Working pressure of shell by rules 184 lbs Size of manhole in shell 12" x 16" in end plate

Size of compensating ring Flanged end No. and Description of Furnaces in each boiler 3 Dighton Material Steel Outside diameter 40 1/4"

Length of plain part top 1" bottom 2" Thickness of plates crown 1" bottom 2" Description of longitudinal joint Weld No. of strengthening rings yes

Working pressure of furnace by the rules 187 lbs Combustion chamber plates: Material Steel Thickness: Sides 23" Back 23" Top 23" Bottom 7"

Pitch of stays to ditto: Sides 9" x 10" Back 8 3/4" x 10" Top 9" x 10 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 187 lbs

Material of stays Steel Area at smallest part 2.1 Area supported by each stay 94 1/2" Working pressure by rules 200 lbs End plates in steam space:

Material Steel Thickness 1 3/8" Pitch of stays 25" x 19" How are stays secured Doub. nut Working pressure by rules 180 lbs Material of stays Steel

Area at smallest part 3 1/4" Area supported by each stay 25" x 19" Working pressure by rules 180 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 15/16" Greatest pitch of stays 14" wide Working pressure of plate by rules 80 lbs

Diameter of tubes 3" Pitch of tubes 4 3/8 x 4 1/4" Material of tube plates Steel Thickness: Front 1" Back 13/16" Mean pitch of stays 10 1/2"

Pitch across wide water spaces 14" Working pressures by rules 180 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 9 1/2 x 13/16 (two) Length as per rule 32" Distance apart 10 1/2" Number and pitch of stays in each 2 @ 9"

Working pressure by rules 262 lbs Steam dome: description of joint to shell yes Diam. of rivet holes

Diameter yes Thickness of shell plates yes Material yes Description of longitudinal joint yes Thickness yes How stayed yes

Pitch of rivets yes Working pressure of shell by rules yes Crown plates yes Tested by Hydraulic Pressure to yes

UPERHEATER. Type yes Date of Approval of Plan yes Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes

Date of Test yes Is Easing Gear fitted yes

Diameter of Safety Valve yes Pressure to which each is adjusted yes



IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— Two crosshead bolts & nuts: 2 crank pin bolts & nuts: two main bearing bolts & nuts: Set compeling bolts & nuts:

Feed & bilge pump valve: Set piston springs. Assorted bolts & nuts. Iron of various sizes.

The foregoing is a correct description,

*G. Yennida* *Eng. Manager*  
*O. G. WIL.*

Dates of Survey while building { During progress of work in shops -- } 14<sup>th</sup> March 10<sup>th</sup> 14<sup>th</sup> 26 April 6 May 6 June 26 June 4 July 14<sup>th</sup> 18<sup>th</sup> 29 August  
{ During erection on board vessel --- } 15<sup>th</sup> Sept. 3<sup>rd</sup> 5<sup>th</sup> 15<sup>th</sup> Oct. 15<sup>th</sup> 16<sup>th</sup> 23<sup>rd</sup> 29<sup>th</sup> Nov. 30<sup>th</sup> Nov. 2<sup>nd</sup> 13<sup>th</sup> 23<sup>rd</sup> Dec 1916.  
Total No. of visits 23

Is the approved plan of main boiler forwarded herewith *No.* Sent with Rpt No 1437 on *Leusko Maru*  
" " " donkey " " " *None*

Dates of Examination of principal parts—Cylinders 26<sup>th</sup> Apr. etc Slides 15<sup>th</sup> Sep etc Covers 15<sup>th</sup> Sep etc Pistons 15<sup>th</sup> Sep etc Rods 3<sup>rd</sup> Oct etc  
Connecting rods 3<sup>rd</sup> Oct etc Crank shaft 23<sup>rd</sup> Nov etc Thrust shaft 23<sup>rd</sup> Nov. Tunnel shafts 15<sup>th</sup> Nov. etc Screw shaft 23<sup>rd</sup> Nov Propeller 29<sup>th</sup> Nov.  
Stern tube 16<sup>th</sup> Nov. Steam pipes tested 13<sup>th</sup> Dec. Engine and boiler seatings 30<sup>th</sup> Nov. Engines holding down bolts 13<sup>th</sup> Dec.  
Completion of pumping arrangements 13<sup>th</sup> Dec. Boilers fixed 2<sup>nd</sup> Dec. Engines tried under steam 23<sup>rd</sup> Dec 1916  
Completion of fitting sea connections 30<sup>th</sup> Nov. Stern tube 16<sup>th</sup> Nov. Screw shaft and propeller 29<sup>th</sup> Nov.  
Main boiler safety valves adjusted 23<sup>rd</sup> Dec. Thickness of adjusting washers  $\frac{3}{8} + \frac{5}{16}$

Material of Crank shaft *Steel* Identification Mark on Do. *R 3-10-16* Material of Thrust shaft *Steel* Identification Mark on Do. *R 20-11-16*  
Material of Tunnel shafts *Steel* Identification Marks on Do. *R 23-11-16* Material of Screw shafts *Steel* Identification Marks on Do. *R 23-11-16*  
Material of Steam Pipes *Steel* Test pressure 540 lbs

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 *Yes* If so, state name of vessel

*"Peking Maru" Kobe Rep 1498*

*Mii Resan Maru " 1823*

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

*"Ikomasan Maru " 1868*  
*etc etc*

The machinery has been made & fitted under Special Survey in accordance with the Rules & the materials & workmanship have been found good.

The machinery is eligible in my opinion for the record + LMC with date 12.16.

A report upon the Electric Lighting is forwarded.

The crank shafts were made at The Kobe Steel Works & the remainder of the shafting at The Sumitomo Steel Works.

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC 12.16. F.D.

The amount of Entry Fee ... *yen 20* : When applied for,  
Special ... *yen 516* : 27<sup>th</sup> Dec 1916  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : : 2<sup>nd</sup> Jan 1917

*Arthur L. Jones*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 30 MAR. 1917

Assigned

+ LMC 12.16 F.D.

MACHINERY CERTIFICATE  
WRITTEN



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Foundation