

## REPORT ON MACHINERY.

No. 2141

Received at London Office

Date of writing Report 11<sup>th</sup> Dec. 1917 When handed in at Local Office 10 Port of Kobe  
No. in Survey held at Osaka Date, First Survey 8 March 1916 Last Survey 20 Nov. 1917  
Reg. Book. on the Steel Single Screw Steamer "Hodaisan Maru" (Number of Voids 40)Master Built at Osaka By whom built The Osaka Iron Works, Ltd. Tons Gross 6071 Net 4433  
Engines made at Osaka By whom made The Osaka Iron Works, Ltd. When built 1917  
Boilers made at do By whom made do when made do

Registered Horse Power Owners The Mitsui Bussan Kaisha Ltd Port belonging to

Nom. Horse Power as per Section 28 553 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 Three

Dia. of Cylinders 27" 45" 75" Length of Stroke 51" Revs. per minute 65 Dia. of Screw shaft as per rule 15.27 Material of Steel as fitted 15 3/4 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 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 Fitted tightly by two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 5' 6"

Dia. of Tunnel shaft as per rule 13.67 Dia. of Crank shaft journals as per rule 14.35 Dia. of Crank pin 14 7/8 Size of Crank webs 9 1/2 x 27 1/2 Dia. of thrust shaft under

collars 14 7/8 Dia. of screw 18" 3" Pitch of Screw 18" 3" No. of Blades 4 State whether moveable Yes Total surface 100 sq. ft.

No. of Feed pumps Two Diameter of ditto 4" Stroke 27" Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two Diameter of ditto 4 1/2" Stroke 27" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Three Sizes of Pumps Gen. 10" 13" 13" dup. No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 3 1/2" Bl. room two 3 1/2" In Holds, &amp;c. 3 1/2" to each side in each hold

No. of Bilge Injections 1 sizes 9" dia Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room &amp; 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 Ballast tank air pipes How are they protected Strong wood casings

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 in Eng. Rm

BOILERS, &amp;c.—(Letter for record S) Manufacturers of Steel Wm Beardmore &amp; Co. J Dunlop &amp; Co.

Total Heating Surface of Boilers 8100 Is Forced Draft fitted Yes No. and Description of Boilers Three Single Ended

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 13 Oct 1916 No. of Certificate 1104 DS

Can each boiler be worked separately Yes Area of fire grate in each boiler 63 1/4 No. and Description of Safety Valves to

each boiler Two Direct Spring Area of each valve 3" dia. Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 1' 8" Mean dia. of boilers 15' 0" Length 12' 0" Material of shell plates Steel

Thickness 1 1/4 Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Double

long. seams Double Straps Diameter of rivet holes in long. seams 1 5/16 Pitch of rivets 9" x 4 1/2 Lap of plates or width of butt straps 1' 7 1/2" x 1 1/8

Per centages of strength of longitudinal joint rivets 89.25 Working pressure of shell by rules 187 lbs Size of manhole in shell 12" x 16"

Size of compensating ring 2' 10" x 3' 2" x 1 1/4 No. and Description of Furnaces in each boiler Three Brighton Material Steel Outside diameter 4' 0 1/2"

Length of plain part top Thickness of plates crown 19 3/32 Description of longitudinal joint Weld No. of strengthening rings

Working pressure of furnace by the rules 195 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 7/8

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

Material of stays Steel Area at smallest part 1.79 Area supported by each stay 72 1/4 Working pressure by rules 222 lbs End plates in steam space:

Material Steel Thickness 1 3/32 Pitch of stays 18 x 20 How are stays secured Double nut Working pressure by rules 193 lbs Material of stays Steel

Area at smallest part 7.06 Area supported by each stay 18 x 20 Working pressure by rules 207 lbs Material of Front plates at bottom Steel

Thickness 3/4 Material of Lower back plate Steel Thickness 3/4 Greatest pitch of stays 14" Sec. Stays Working pressure of plate by rules 180 lbs

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

Pitch across wide water spaces 13 1/4 Working pressures by rules 180 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 9 1/2 x 7 1/2 (two) Length as per rule 33 1/2 Distance apart 9 Number and pitch of stays in each 3 @ 8"

Working pressure by rules 218 lbs 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 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



IS A DONKEY BOILER FITTED? *Yes*

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

SPARE GEAR. State the articles supplied:—

4 bolts + nuts for crossheads. 2 bolts + nuts for crank pins.  
1 set coupling bolts + nuts. 4 main bearing bolts + nuts. Fed + bilge pump valves.  
Assorted bolts + nuts. + iron various sizes. Set packing rings + springs each piston.  
Propeller shaft + nut. + 2 blades. Crank pin + crosshead trusses. Slide valve rods.  
Eccentric rods. Junk ring bolts + Piston rod each size. Air pump rod. + valves.  
Centrif. fan + shaft. Safety valve spring each boiler. etc etc

The foregoing is a correct description,

OSAKA IRON WORKS, LTD.

*T. Yamaguchi*

Manufacturer.

MANAGING DIRECTOR

Dates of Survey while building	{	During progress of work in shops --	8. Mar. 10. 11. Apr. 9 June 4. 5. 24 26 July 14. 18 Aug. 15 Sep. 13 Oct. 16. 30 Nov. 23 Dec. 1916
		During erection on board vessel --	16. 30 Jan. 14. 24 Mar. 20 Apr. 1. 8. 30 May. 4 June. 6. 10. 24. 29 Aug. 1 1917
		Total No. of visits.	39

Is the approved plan of main boiler forwarded herewith *Yes*

" " " donkey " " " *Yes*

Dates of Examination of principal parts—Cylinders	30/1/17 etc	Slides	20/4/17	Covers	30/1/17 etc	Pistons	20/4/17	Rods	6/2/17 etc		
Connecting rods	9/2/17	Crank shaft	14/8/16	Thrust shaft	21/7/17	Tunnel shafts	18/8/17	Screw shaft	28/8/17	Propeller	6/7/17
Stern tube	6/7/17	Steam pipes tested	12/9/17	Engine and boiler seatings	29/8/17	Engines holding down bolts	20/10/17				
Completion of pumping arrangements	1/11/17	Boilers fixed	20/10/17	Engines tried under steam	28/10/17						
Completion of fitting sea connections	29/8/17	Stern tube	29/8/17	Screw shaft and propeller	3/9/17						
Main boiler safety valves adjusted	28/10/17	Thickness of adjusting washers	Locknuts								

Material of Crank shaft	Steel	Identification Mark on Do.	LLOYDS 14.8.16 ALJ. R	Material of Thrust shaft	Steel	Identification Mark on Do.	O.S.I. LLOYDS 21.7.17 ALJ. R
Material of Tunnel shafts	Steel	Identification Marks on Do.	LLOYDS 16.8.17 20.8.17 ALJ. R	Material of Screw shafts	Steel	Identification Marks on Do.	LLOYDS 22.10.17 28.8.17 ALJ. R
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 *No*. If so, state name of vessel

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

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

The machinery is in my opinion eligible for the record + L.M.C. 11.17.  
The Electric lighting report will be sent later

On trial the vessel made a mean speed of  $13\frac{3}{4}$  knots on a mean draught of 15' 2" (displ<sup>mt</sup> 6726 tons). Revs. per min. 82½. Recvd pressures HP 172 lbs. IP 45 lbs. LP 17 lbs. Vac. 26.6". I.H.P. 4051. Draught prss. in ash pits .76" to .88". Fed temp 189°F.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 11.17. F.D. *ARR*

The amount of Entry Fee ...	<i>Yes</i>	: 30/-	When applied for, 17 Nov. 1917
Special ...	<i>Yes</i>	: 7/6 2s	
Donkey Boiler Fee ...	<i>Yes</i>	: 80/-	When received, 21 Nov. 1917
Travelling Expenses (if any) ...	<i>Yes</i>	: 20/-	

*Arthur L. Jones*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 26 FEB. 1918  
Assigned *+ L.M.C. 11.17*  
F.D.

MACHINERY CERTIFICATE WRITTEN.