

Rpt. 4. **REPORT ON MACHINERY.** SAT. No. 2248.

Received at London Office

Date of writing Report 19 When handed in at Local Office 19 Port of Kobe.

No. in Survey held at Innoshima Date, First Survey December 11th Last Survey April 30th 1918
 Reg. Book. on the Steel Single Screw Steamer "Totai Maru" (Number of Visits 16)

Master K. Kabotā. Built at Innoshima. By whom built Osaka Iron Works. Innoshima Tons } Gross 3192.58.
 when made 1918. Net 1991.53.

Engines made at Innoshima. By whom made Osaka Iron Works. when made 1918.
 Boilers made at Osaka By whom made Osaka Iron Works. when made 1918.

Registered Horse Power Owners Kobe Towa Kisen Kabushiki Kaisha Port belonging to Kobe (Innoshima)
 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 screw shaft Steel
 as fitted 13.

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 ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ 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" 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 80 sq. ft.

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 1/4" Stroke 24" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines Two Sizes of Pumps Ballast 7' x 8 1/2" x 9" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 1 @ 4" In tunnel well 1 @ 2 1/2" In Holds, &c. Two @ 3" in each hold.
1 @ 3 1/2" in after well.

No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump circ pp 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 ✓
 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 ✓ 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 Upper plating in Engine Room.

OILERS, &c.—(Letter for record S) Manufacturers of Steel Duckens Steel Co, Cambrai Steel Co
Deighton's Patent Flue Co., Reading Iron Co.

Total Heating Surface of Boilers 3824 sq. ft. 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 1st April 1918 No. of Certificate LLOYD'S HYDRO TEST 360 LBS. 1. 4. 1918. A.L. 18.

Can each boiler be worked separately Yes Area of fire grate in each boiler 45 sq. ft. No. and Description of Safety Valves to each boiler Two Spring loaded. Area of each valve 3 1/4" dia Pressure to which they are adjusted 180 lbs. Are they fitted with easing gear Yes.

Smallest distance between boilers or uptakes and by-pipes or woodwork About 12" Mean dia. of boilers 13'-7 3/16" Length 11'-6" Material of shell plates Steel.
 Thickness 1 3/16" Range of tensile strength 26,790 - 32,000 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DRL
 long. seams DRTBS Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 3/8" Lap of plates or width of butt straps 18 1/2"

Per centages of strength of longitudinal joint rivets 91.7 Working pressure of shell by rules 180 lbs. Size of manhole in shell 12" x 16"
 plate 85.3

Size of compensating ring Flanged No. and Description of Furnaces in each boiler 3 Deighton Material Steel Outside diameter 40 1/4"
 Length of plain part top ✓ Thickness of plates crown 1/2" Description of longitudinal joint weld No. of strengthening rings ✓
 bottom ✓

Working pressure of furnace by the rules 187 lbs Combustion chamber plates: Material Steel Thickness: Sides 23/32" Back 1/32" Top 23/32" Bottom 7/8"
 Pitch of stays to ditto: Sides 9.5 Back 9.3 Top 9.75. If stays are fitted with nuts or riveted heads nuts Working pressure by rules 214.

Material of stays Steel Area at smallest part 2.10 sq. in. Area supported by each stay 90 sq. in. Working pressure by rules 210 End plates in steam space: 111

Material Steel Thickness 1 3/8" Pitch of stays 25" x 19" How are stays secured DN & W. Working pressure by rules 180 Material of stays Steel
534 Area at smallest part 10.12 sq. in. Area supported by each stay 475 sq. in. Working pressure by rules 180 Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1 1/16" Greatest pitch of stays 14" Working pressure of plate by rules 180.
 Diameter of tubes 3" Pitch of tubes 4.3 Material of tube plates Steel Thickness Front 1" Back 1 1/16" Mean pitch of stays 10 1/2"

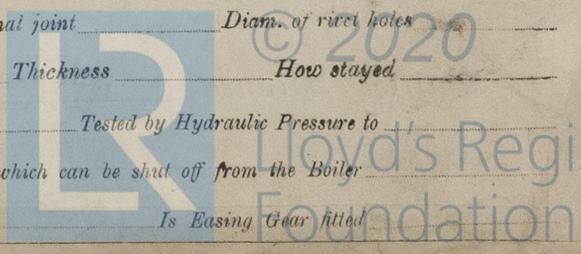
Pitch across wide water spaces 14" Working pressures by rules 180 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 10" x 1 5/8" Length as per rule 32" Distance apart 10 1/2" Number and pitch of stays in each 2 @ 9"

Working pressure by rules 202 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

4010-256800-85800



IS A DONKEY BOILER FITTED? *no.*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

Complete set of piston rings	Assorted bolts and nuts
Set of Crank pin and crosshead bosses	Steel plate assorted.
2 Crosshead bolts and nuts.	Set of feed and bilge pump valves.
2 Crank pin bolts and nuts.	Propeller.
Set of Coupling bolts and nuts.	
2 main bearing bolts and nuts.	

The foregoing is a correct description,

L. G. Yemm

Manufacturer.

Dates of Survey while building

During progress of work in shops --	December 4 th , 7 th , 18 th , 1917	January 14 th , 23 rd , 27 th	Feb 3 rd , 6 th	March 14 th , 20 th , 26 th , 27 th
During erection on board vessel ---	April 12 th , 20 th , 25 th , 30 th			
Total No. of visits	16			

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

Dates of Examination of principal parts—Cylinders *Dec 4th / 17* Slides *Dec 4th* Covers *Dec 14th* Pistons *Dec 4th* Rods *March 14th*

Connecting rods *March 14th* Crank shaft *March 14th* Thrust shaft *March 14th* Tunnel shafts *March 14th* Screw shaft *Oct 27 / 17* Propeller *Apr 25th*

Stern tube *April 20th* Steam pipes tested *April 15th* Engine and boiler seatings *March 27th* Engines holding down bolts *April 20th*

Completion of pumping arrangements *April 25th* Boilers fixed *April 20th* Engines tried under steam *April 26th*

Completion of fitting sea connections *April 25th* Stern tube *April 25th* Screw shaft and propeller *April 25th*

Main boiler safety valves adjusted *April 25th* Thickness of adjusting washers *Lock nuts.*

Material of Crank shaft *Steel* Identification Mark on Do. *LLOYD'S 20.2.18. ALT R.* Material of Thrust shaft *Steel* Identification Mark on Do. *LLOYD'S 26.10.17. ALT R.*

Material of Tunnel shafts *Steel* Identification Marks on Do. *LLOYD'S 1.10.17. ALT R.* Material of Screw shafts *Steel* Identification Marks on Do. *LLOYD'S 27.10.17. ALT R.*

Material of Steam Pipes *Steel.* Test pressure *540 lbs per sq inch.*

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 *Pekin Maru, Tencho Maru, Yuki Maru, Sekkou Maru, Meichi Maru, Genzan Maru (Kobe rpt no 2226) (slight variations in boiler sizes)*

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 and the materials and workmanship have been found good.

The machinery is eligible in my opinion for the record of + L M C 4. 18.

It is submitted that this vessel is eligible for THE RECORD. + L M C 4. 18 F. D.

J. S. 13-8-18 *APR 18*

R. B. Batcher
Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... *£ 20.00* When applied for, *Apr 17 1918.*

Special ... *£ 516.00*

Donkey Boiler Fee ... *£ :* When received, *May 2nd 1918.*

Travelling Expenses (if any) *£ :*

Committee's Minute *TUE. 13 AUG. 1918*

Assigned *+ L. M. C. 4:18 F. D.*



Certificate (if required) to be sent to ...