

# REPORT ON MACHINERY

No. 3099

SAT. 16 APR. 1921

Received at London Office

Date of writing Report Febr. 20<sup>th</sup> 1921 When handed in at Local Office 15 Port of Kobe  
 No. in Survey held at Kobe - Harima Date, First Survey May 24<sup>th</sup> 1920 Last Survey Jan. 14<sup>th</sup> 1921  
 Reg. Book. on the Steel Single Screw Steamer "IWATE MARU" (Number of Visits 41)  
 Master NOT YET APPOINTED Built at Harima By whom built Teikoku Steamship Co. Tons { Gross 3180 approx.  
 Engines made at Kobe By whom made Kobe Steel Works, Ltd. when made 1921 Net 1940 approx.  
 Boilers made at do By whom made do when made 1921 When built 1921  
 Registered Horse Power \_\_\_\_\_ Owners Teikoku Steamship Co. Port belonging to Oh.  
 Nom. Horse Power as per Section 28 352 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes

**ENGINES, &c.**—Description of Engines Vertical Triple Expansion No. of Cylinders Three No. of Cranks 3  
 Dia. of Cylinders 23" : 38" : 64" Length of Stroke 48" Revs. per minute 80 Dia. of Screw shaft as per rule 13.81 Material of steel  
 as fitted 14.75 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 ✓ If 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 12.49" Dia. of Crank shaft journals as per rule 13.12" Dia. of Crank pin 13 1/2" Size of Crank webs 26" x 20" Dia. of thrust shaft under  
 collars 13 1/2" Dia. of screw 16'-6" Pitch of Screw 17'-3" No. of Blades 4 State whether moveable yes Total surface 84.4"  
 No. of Feed pumps 2 Diameter of ditto 4 1/2" Stroke 24" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 24" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 4 Sizes of Pumps Ballast 8" x 19" x 9" No. and size of Suctions connected to both Bilge and Donkey pumps  
Ind. Feed 10 1/2" x 8" x 24"  
Donkey 7" x 5" x 12"  
Gen. Sew. 7" x 5" x 7"  
 In Engine Room 4 each 3 1/2" dia. In Holds, &c. 1, 2 + 3 two in each 3 1/2" dia.  
 In Tunnel 1 at 3" dia.  
 No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump ✓ 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 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 Bilge 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 Top platform in Eng. Rm.

**BOILERS, &c.**—(Letter for record S.) Manufacturers of Steel North Stl. Co., Midvale Stl. Co., Alan Wood Iron & Stl. Co.,  
Republic Iron & Stl. Co., Am. Spiral Pipe Co. (Burness)  
 Total Heating Surface of Boilers 4558 Is Forced Draft fitted yes No. and Description of Boilers Two Single Ended  
 Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 26-8-20: 28-8-20 No. of Certificate LLOYDS  
W.T. 400 LBS.  
W.P. 200 LBS.  
26-8-20: 28-8-20  
J.B. 28  
 Can each boiler be worked separately yes Area of fire grate in each boiler 55 No. and Description of Safety Valves to  
 each boiler 2 Spring Loaded Area of each valve 9.621 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'-0" Length 11'-6" Material of shell plates steel  
 Thickness 1 5/16" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Double  
 long. seams Treble Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 8 3/4" Lap of plates or width of butt straps 19" x 1 3/32"  
 Per centages of strength of longitudinal joint rivets 96.13 Working pressure of shell by rules 209 lbs. Size of manhole in shell 16" x 12"  
plate 84.28  
 Size of compensating ring 36" x 31" x 1 1/8" No. and Description of Furnaces in each boiler 3 Morrison's Material steel Outside diameter 44 1/4"  
 Length of plain part top 1 1/2" Thickness of plates bottom 1 3/32" Description of longitudinal joint Welded No. of strengthening rings ✓  
 Working pressure of furnace by the rules 213 lbs. Combustion chamber plates: Material steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 1/16"  
 Pitch of stays to ditto: Sides 10" x 7" Back 8 1/2" x 8 1/2" Top 9" x 8 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 219 lbs.  
 Material of stays steel Area at smallest part 2.03 Area supported by each stay 74.53 Working pressure by rules 245 lbs. End plates in steam space:  
 Material steel Thickness 1 3/16" Pitch of stays 19" x 16 3/4" How are stays secured nuts & washers Working pressure by rules 208 lbs. Material of stays steel  
 Area at smallest part 7.5 Area supported by each stay 320.78 Working pressure by rules 243 lbs. Material of Front plates at bottom steel  
 Thickness 3/4" Material of Lower back plate steel Thickness: 1/16" Greatest pitch of stays 17" x 10 1/2" Working pressure of plate by rules 224 lbs.  
 Diameter of tubes 3" Pitch of tubes 4 1/4" x 4 1/8" Material of tube plates steel Thickness: Front 1 3/16" Back 3/4" Mean pitch of stays 8 1/2" x 8 1/4"  
 Pitch across wide water spaces 13 3/8" Working pressures by rules 289 lbs. Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 9" x 1 1/2" Length as per rule 29 1/4" Distance apart 8 1/4" Number and pitch of stays in each 2 @ 9"  
 Working pressure by rules 265 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 \_\_\_\_\_  
 W1575-007L

IS A DONKEY BOILER FITTED? No

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

- 2 Connecting-rod top end bolts + nuts. 1 Pair of Crosshead brasses. 4 Junk ring bolts.
- 2 " " bottom end " " " 1 Pair of Connecting-rod brasses. 6 Boiler plan + 3 stay tubes.
- 1 Set of coupling bolts. 1 Air pump Rod. 50 Condenser tubes.
- 2 Main bearing bolts. 1 Valve spindle. 1 Set of Safety valve springs.
- 1 Set of Valves for air, Feed + Bilge pumps. 1 Set of Check valves. 1 Set of Cylinder escape valve springs.
- 1 Set of Piston springs. 5 Cylinder cover studs. about 60 lbs. of assorted bolts + studs.

The foregoing is a correct description,

H. Mikami

Manufacturer.

Dates of Survey while building

During progress of work in shops --	1920 May 24, 28, 31; June 4, 15, 19, 21, 22, 25; July 1, 10, 12, 15, 16, 22, 24, 29; Aug. 2, 11, 16, 18, 26, 27, 28; Oct. 5, 7, 12, 16, 23;
During erection on board vessel --	Nov. 2, 8, 10, 15, 19, 29; Dec. 8, 15, 20, 22; Jan. 14, 1921
Total No. of visits	41

Is the approved plan of main boiler forwarded herewith  yes

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 5-10-20 Slides 7-10-20 Covers 23-10-20 Pistons 23-10-20 Rods 5-10-20

Connecting rods 5-10-20 Crank shaft 23-10-20 Thrust shaft 7-10-20 Tunnel shafts 27-8-20 Screw shaft 27-8-20 Propeller 15-11-20

Stern tube 19-11-20 Steam pipes tested 8-12-20 Engine and boiler seatings 19-11-20 Engines holding down bolts 8-12-20

Completion of pumping arrangements 22-12-20 Boilers fixed 8-12-20 Engines tried under steam 20-12-20; overhaul 22-12-20

Completion of fitting sea connections 19-11-20 Stern tube 19-11-20 Screw shaft and propeller 29-11-20

Main boiler safety valves adjusted 15-12-20 Thickness of adjusting washers Lock nuts.

Material of Crank shaft Steel Identification Mark on Do. LLOYDS 16-10-20; 23-10-20 R.O.B. Material of Thrust shaft Steel Identification Mark on Do. LLOYDS 7-10-20 R.O.B.

Material of Tunnel shafts Steel Identification Marks on Do. LLOYDS 12-7-20; 15-7-20; 27-8-20; 29-7-20 R.O.B. Material of Screw shafts Steel Identification Marks on Do. LLOYDS 27-8-20 R.O.B.

Material of Steam Pipes Solid Drawn Copper Test pressure 400 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 3/s. MIYE MARU (Kobe Rpt. 2938)  
3/s. KOCHI MARU (Kobe Rpt. 3035)

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

The Forgings for Shafting etc. were made + listed at Kobe Steel Works.

The machinery has been made and fitted under special Survey in accordance with the requirements of the Rules and the materials + workmanship are good. The machinery of this vessel is eligible, it is submitted, for the notation **⊕ L.M.C 1-21**

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 1-21. FD. CL

Roll  
28/4/21

Alexander Watt  
Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... YEN 30<sup>00</sup> : When applied for,  
Special ... 658<sup>00</sup> : 14-1-1921  
Donkey Boiler Fee ... £ — : When received,  
Travelling Expenses (if any) ENCL<sup>d</sup> IN Hull Rpt. 31-1-1921

Committee's Minute FRI. MAY. 6 1921  
Assigned + L.M.C. 1-21  
F.D. C.L.



Certificate (if required) to be sent to  
The Surveyors are requested not to write on or below the space for Committee's Minute.

CERTIFICATE WRITTEN