

# REPORT ON MACHINERY.

Received at London Office TUE 3 FEB. 1920

Date of writing Report 20-11-1919 When handed in at Local Office 10-12-1919 Port of Kobe

No. in Survey held at Osaka + Innoshima Date, First Survey 2<sup>nd</sup> July 1919 Last Survey 20<sup>th</sup> Sept. 1919  
Reg. Book. \_\_\_\_\_ (Number of Visits \_\_\_\_\_)

on the Steel Single Screw Steamer "HEIMEI MARU"

Tons { Gross 4366  
Net 2719  
When built 1919

Master R. Nakanishi Built at Innoshima By whom built The Osaka Iron Works Ltd

Engines made at Innoshima By whom made The Osaka Iron Works, Innoshima when made 1919

Boilers made at Osaka By whom made The Osaka Iron Works, Ltd when made 1919

Registered Horse Power \_\_\_\_\_ Owners Kokusai Kisen Kabushiki Kaisha Port belonging to Kobe

Nom. Horse Power as per Section 28 390 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 24: 41: 67" Length of Stroke 48" Revs. per minute 65 Dia. of Screw shaft as per rule 13.96 Material of screw shaft Steel  
as fitted 14 1/2"

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 one length 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 If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 5'-4"

Dia. of Tunnel shaft as per rule 12.46 Dia. of Crank shaft journals as per rule 13.09 Dia. of Crank pin 13 1/2 Size of Crank webs 8 1/2 x 25 Dia. of thrust shaft under

collars 13 1/4 Dia. of screw 17'-0" Pitch of Screw 17'-0" No. of Blades 4 State whether moveable No Total surface 90"

No. of Feed pumps Two Diameter of ditto 4 Stroke 25" Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 4 1/2 Stroke 25" Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps Bal. 9 1/2 x 12 x 10 dup. Gen. 7 1/2 x 5 1/2 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 3 1/2 In Holds, &c. Nos. 1, 2 Holds each 3 1/2 Centre + two 2 3/4

One 3 1/2 to Tunnel Well wings. Aft. Hold 2 - 2 3/4 Centre + two 2 3/4 wings

No. of Bilge Injections 1 sizes 7" Connected to condenser, or to circulating pump or p. 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 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 None 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 up grating in E. Room.

ROLLERS, &c.—(Letter for record S) Manufacturers of Steel U.S. Stl. Products Co., Amer. Spiral Pipe Wks., Carnegie

Stl. Co., Allegheny Stl. Co.

Total Heating Surface of Boilers 5400 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 19<sup>th</sup> Aug. 19 No. of Certificate LLOYD'S HYD TEST 360 LBS 19-8-19 Y.J.R.

Can each boiler be worked separately yes Area of fire grate in each boiler 63.25 sq. ft. No. and Description of Safety Valves to

each boiler Two Spring Loaded 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 12" Mean dia. of boilers 15'-0" Length 12'-0" 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 riv

long. seams Double rivets Diameter of rivet holes in long. seams 1 5/16" Pitch of rivets 9" + 4 1/2" Lap of plates or width of butt straps 19 1/2 1 1/2 (in)

Per centages of strength of longitudinal joint rivets 87.2 Working pressure of shell by rules 197 lbs. Size of manhole in shell 12" x 16"

plate 85.2 No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 48 1/4"

Length of plain part top 1 1/2" Thickness of plates crown 19/32 Description of longitudinal joint Weld No. of strengthening rings

bottom 1 1/2" Working pressure of furnace by the rules 196 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 1/4" 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 186 lbs.

Material of stays Steel Area at smallest part 1.79 sq. ft. Area supported by each stay 8 1/2" x 8 1/2" Working pressure by rules 223 lbs. End plates in steam space:

Material Steel Thickness 1/32" Pitch of stays 18" x 20" How are stays secured Double nuts Working pressure by rules 194 lbs. Material of stays Steel

Area at smallest part 7.50 sq. ft. Area supported by each stay 18" x 20" Working pressure by rules 216 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" wide up Working pressure of plate by rules 180 lbs.

Diameter of tubes 3" Pitch of tubes 4 1/4" x 4 1/8" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9 3/4"

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

thickness of girder at centre 9 1/2" x 7 1/8" (two) Length as per rule 33 5/8" Distance apart 9" Number and pitch of stays in each 3 @ 8"

Working pressure by rules 217 lbs. Steam dome: description of joint to shell % of strength of joint

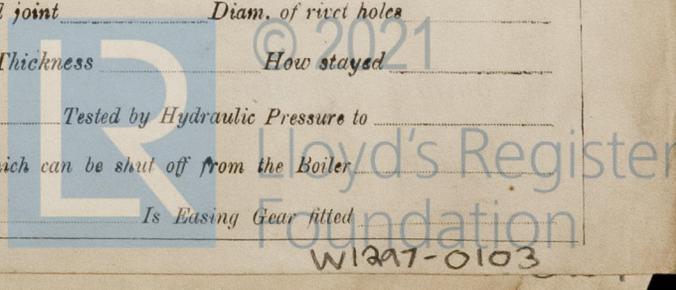
Diameter \_\_\_\_\_ Thickness of shell plates \_\_\_\_\_ Material \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_ Diam. of rivet holes \_\_\_\_\_

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?

No.

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

Set coupling bolts + nuts ✓      4 Crosshead bolts + nuts ✓      Piston Springs all piston  
 Crank + Crosshead "brasses" ✓      2 main bearing bolts + nuts. ✓      A + C. pump rods.  
 Set Feed + bilge pump valves + seats, valve spindles + ecc. rods. ✓  
 2 Safety Valves + springs      Feed Check valves + seats ✓  
 2 Crank pin bolts + nuts      Assorted bolts + nuts steel plates etc. ✓

The foregoing is a correct description.

*G. Yount*            Manufacturer.

Dates of Survey while building { During progress of work in shops -- July: 2, 11, 15, 17, 25, 22, 28; Aug: 5, 8, 11, 13, 14, 19, 21, 23<sup>rd</sup>  
 { During erection on board vessel --- Sept: 4, 9, 16, 17, 23, 25 + 29<sup>th</sup>.  
 Total No. of visits 22<sup>nd</sup>.

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 15-7-19 Slides 15-7-19 Covers 11-7-19 Pistons 25-7-19 Rods 5-8-  
 Connecting rods 11-7-19 Crank shaft 11-7-19 Thrust shaft 17-7-19 Tunnel shafts 15-7-19 Screw shaft 16-7-19 Propeller 21-8-  
 Stern tube 8-8-19 Steam pipes tested 9-9-19 Engine and boiler seatings 11-7-19 Engines holding down bolts 25-8-  
 Completion of pumping arrangements 21-9-19 Boilers fixed 9-9-19 Engines tried under steam 25-9-19  
 Completion of fitting sea connections 25-9-19 Stern tube 23-8-19 Screw shaft and propeller 23-9-19  
 Main boiler safety valves adjusted 25-9-19 Thickness of adjusting washers Lock nuts.  
 Material of Crank shaft Steel Identification Mark on Do. LLOYDS 17-8-19 J.S.R. Material of Thrust shaft Steel Identification Mark on Do. LLOYD 24-12-12 Y.J.R.  
 Material of Tunnel shafts Steel Identification Marks on Do. LLOYDS 18-12-18 Y.J.R. Material of Screw shafts Steel Identification Marks on Do. LLOYDS 22-10-18 Y.J.R.  
 Material of Steam Pipes Steel Test pressure 540 lbs. per sq. in.

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 If so, state name of vessel "Fuku Maru", "Yamato Maru", "War Maid", "Heijin Maru"

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

The Machinery has been made + fitted under special Survey in accordance with the Rules + the Materials + Workmanship are good. The vessel is eligible in my opinion the notation  $\oplus$  L.M.C. 9-19.

It is submitted that this vessel is eligible for THE RECORD  $\oplus$  L.M.C. 9. 19. F.D.

*J.R.*      *3/2/20*      *J.R.R.*

Certificate (if required) to be sent to

The amount of Entry Fee Yen 30.- : When applied for.  
 Special M ... £ 691.- : 1- Oct. 1919.  
 Donkey Boiler Fee ... £ : : When received.  
 Travelling Expenses (if any) £ : : 24<sup>th</sup> Oct. 1919.

Committee's Minute TUE. JUN. 15 1920

Assigned + L.M.C. 9. 19 - F.D.

*John Lewis + Y. Jo.*  
 Engineer Surveyor to Lloyd's Register of Shipping



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