

# REPORT ON MACHINERY.

No. 2576

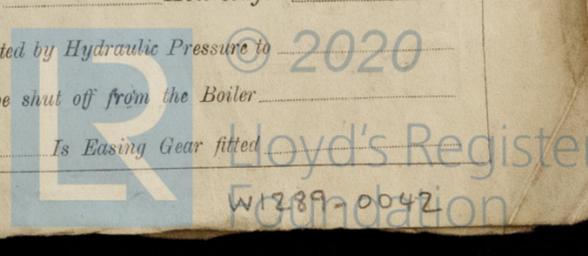
Received at London Office

Date of writing Report 28 Aug 1919 When handed in at Local Office Osaka Port of Kobe  
 No. in Survey held at Osaka Date, First Survey 31<sup>st</sup> Dec. 1918 Last Survey 4 August 1919  
 Reg. Book. Stee Sec. Stms. "Heinan Maru" (Number of Visits 36) Tons } Gross 4363  
 on the Osaka By whom built The Osaka Iron Works Ltd Net 2719  
 Master Osaka Built at Osaka when built 1919-7  
 Engines made at Osaka By whom made The Osaka Iron Works Ltd when made 1919  
 Boilers made at do By whom made do when made do  
 Registered Horse Power 382 Owners Katsuda Kisen Kaisha Port belonging to Mitsui  
 Nom. Horse Power as per Section 28 382 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three 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 moceable 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" Dupl. 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" and one 3 1/2" to tunnel well In Holds, &c. No 1 x 2 holds each 3 1/2" centre + two 2 3/4" wings After hold 2 - 2 3/4" centre + 2 - 2 3/4" wings  
 No. of Bilge Injections 1 sizes 7" Connected to condenser, or to circulating pump Cir. 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 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 Up' grating in E. Rm.

BOILERS, &c.—(Letter for record 5.) Manufacturers of Steel Duckenshott & St. Co. Gulf States St. Co. Champion Rivet Co. Leeds Forge Co.  
 Total Heating Surface of Boilers 5186 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 2<sup>nd</sup> June 1919 No. of Certificate LLOYD'S REG. TEST 360 LBS 2.6.19 Y.S. R  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 61.8 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 13" 0" Length 11" 6" Material of shell plates Steel  
 Thickness 1 1/16" Range of tensile strength 26,790 - 32,000 lbs Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Double riv.  
 long. seams Double riveted Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 5/16" + 4 3/16" Top of plates or width of butt straps 19 7/8" 1 1/4" in.  
 Per centages of strength of longitudinal joint rivets 88.0 Working pressure of shell by rules 194 lbs Size of manhole in shell 12" x 16"  
 plate 85.2  
 Size of compensating ring 2' 10" x 3' 2" No. and Description of Furnaces in each boiler 3 Morrison Ball Material Steel Outside diameter 48 5/8"  
 Length of plain part top 1 1/2" crown 9 1/16" Description of longitudinal joint Weld No. of strengthening rings 1  
 bottom 1 1/2" Working pressure of furnace by the rules 257 Combustion chamber plates: Material Steel Thickness: Sides 2 1/32" Back 2 1/32" Top 2 1/32" Bottom 3/4"  
 Pitch of stays to ditto: Sides 7 1/2" x 8 1/2" Back 8 1/2" x 8 1/2" Top 7 1/2" x 9" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 206 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 End plates in steam space: Steel  
 Material Steel Thickness 1 3/8" Pitch of stays 18" x 20" How are stays secured Double nuts & small washers Working pressure by rules 246 lbs Material of stays Steel  
 Area at smallest part 8.76 sq ft Area supported by each stay 18" x 20" Working pressure by rules 252 Material of Front plates at bottom Steel  
 Thickness 13/16" Material of Lower back plate Steel Thickness 13/16" Greatest pitch of stays 13 3/4" with 3/16" ser. stay doubled 13/16" Working pressure of plate by rules 208 +  
 Diameter of tubes 3" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 10 1/2"  
 Pitch across wide water spaces 13 3/4" Working pressures by rules 200 + Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 3/4" x 7 1/8" Length as per rule 30 1/2" Distance apart 9" Number and pitch of stays in each 3 @ 7 1/2"  
 Working pressure by rules 200 + 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:— 4 Crosshead bolts & nuts. 2 Crank pin bolts & nuts. Set coupling bolts & nuts. 2 Main bearing bolts & nuts. Piston springs all pins. Crank & crosshead "brasses". Valve spindles. Ecc. rods. A & C pump rods. Set feed & bilge pump valves & seats. Feed check valves & seats. 2 Safety valves & springs. Assorted bolts & nuts, steel plate etc.

The foregoing is a correct description,

Kahachi Abe



Dates of Survey while building: During progress of work in shops -- Dec. 21, 26, 1918. Jan 27. Feb 3, 14, 17, 18, 26, 28. Mar 8, 10, 18. During erection on board vessel -- Apr 7, 9, 10, 16, 25, 30. May 2, 9, 10, 17, 22, 23, 28, 31. Jun 2, 10, 11, 17. Total No. of visits 36. July 4, 7, 22, 25, 29. Aug 4, 1919. Is the approved plan of main boiler forwarded herewith? Yes.

Dates of Examination of principal parts: Cylinders 31-5-19. Slides 10, 4, 19. Covers 31-5-19. Pistons 7-4-19. Rods 9-5-19. Connecting rods 9-5-19. Crank shaft 27-1-19. Thrust shaft 30-9-18. Tunnel shafts 26-2-19. Screw shaft 28-2-19. Propeller 10-6-19. Stern tube 17-6-19. Steam pipes tested 22-7-19. Engine and boiler seatings 17-6-19. Engines holding down bolts 22-7-19. Completion of pumping arrangements 25-7-19. Boilers fixed 22-7-19. Engines tried under steam 25-7-19 at morning 26-7-19 off. Completion of fitting sea connections 7-7-19. Stern tube 17-6-19. Screw shaft and propeller 7-7-19. Main boiler safety valves adjusted 25-7-19. Thickness of adjusting washers Port B 1 1/2, Star B 1 1/2. Locking device Lloyd's. Material of Crank shaft Steel. Identification Mark on Do. 27-1-19, 27-13-19, 26-13-19, 26-13-19. Material of Thrust shaft Steel. Identification Mark on Do. 30-9-18, 30-9-18, 30-9-18. Material of Tunnel shafts Steel. Identification Marks on Do. Lloyd's. Material of Screw shafts Steel. Identification Marks on Do. Lloyd's. Material of Steam Pipes Steel. 3-2-19, 26-2-19, 14-2-19, 17-2-19, 10-3-19. 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? Yes. Is this machinery duplicate of a previous case? Yes. If so, state name of vessel: 'Fuku Maru', 'Yamato Maru', 'Mas', 'Keijin Maru' etc.

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 for the notation + LMC 8.19.

It is submitted that this vessel is eligible for THE RECORD. + LMC. 8.19. FD.

Handwritten signatures and initials: R. H. Jones, 14/10/19, J. P. R.

The amount of Entry Fee ... You : 30: When applied for, 31st July 1919. Special ... You : 691. Donkey Boiler Fee ... £ : : When received, 8 Aug 1919. Travelling Expenses (if any) You : 15.

A. L. Jones, Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute Assigned + LMC 8.19. TUE OCT 21 1919. F&D.



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