

# REPORT ON MACHINERY.

No. 825

Port of Kobe

Received at London Office MIN. 21 JUN. 1909

No. in Survey held at Kobe

Date, first Survey 23 Dec. 1907 Last Survey 5 June 1909

Reg. Book.

Sup. 41 on the Steel Twin Screw Steamer "Yacoma Maru"

(Number of Vests)

Gross Tons 6778  
Net Tons 3830

Master H. Yamamoto Built at Kobe By whom built Kawasaki Dryd Co Ltd When built 1909

Engines made at Kobe By whom made Kawasaki Dryd Co Ltd when made 1909

Boilers made at Kobe By whom made Kawasaki Dryd. Co Ltd when made 1909

Registered Horse Power 845 Owners Osaka Shosen Kaisha Kaisha Port belonging to Osaka

Nom. Horse Power as per Section 28 845 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triples expansion. 2 Sets. No. of Cylinders Six No. of Cranks Six

Dia. of Cylinders 19 1/2; 32 3/4; 55 Length of Stroke 46 Revs. per minute 90 Dia. of Screw shaft 12.98 Material of screw shaft Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No 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 Yes 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 Yes

If two liners are fitted, is the shaft lapped or protected between the liners Lapped near liners. Length of stern bush 5' 5 3/4

Dia. of Tunnel shaft 11.08 Dia. of Crank shaft journals 11.63 Dia. of Crank pin 12 7/16 Size of Crank webs 8 x 15 1/2 Dia. of thrust shaft under collars 12

Dia. of screw 15.0 Pitch of Screw 14' 0" mean No. of Blades 4 State whether moveable Yes Total surface 75 Each screw

No. of Feed pumps Two Diameter of ditto 4" Stroke 23" Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two Diameter of ditto 4" Stroke 23" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Four Sizes of Pumps For Weirs. 8 x 10 1/2 x 24  
No. 1. 5 x 8 x 8  
No. 2. 11 x 10 x 12 No. and size of Suctions connected to both Bilge and Donkey pumps Two 3 1/2" in each of the five holds.

In Engine Room Three 3 1/2" After well 3 1/2" & Tunnel bilge 3 1/2"

No. of Bilge Injections 2 sizes 4" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 5"

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

Dates of examination of completion of fitting of Sea Connections 11.1.09 of Stern Tube 21.1.09 Screw shaft and Propeller 29.1.09

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper Engine platform

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Hallside (Steel Co. of Scotland)

Total Heating Surface of Boilers 7498 Is Forced Draft fitted Yes No. and Description of Boilers Three Single Ended.

Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Dates of test 29.12.08 & 26.1.09 No. of Certificate 11, 12 & 13

Can each boiler be worked separately Yes Area of fire grate in each boiler 60.34 No. and Description of Safety Valves to each boiler Two Direct Spring Area of each valve 12.56 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 12" Mean dia. of boilers 15' 6" Length 11' 6" Material of shell plates Steel

Thickness 1 1/2" Range of tensile strength 28 to 32 Tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Double

long. seams Treh. riv. Diameter of rivet holes in long. seams 19/16 Pitch of rivets 10" x 5" Emp. of plates or width of butt straps 1" 9/16 x 1 1/8"

Per centages of strength of longitudinal joint rivets 95.0 Working pressure of shell by rules 230 lbs Size of manhole in shell 14" x 12"

Size of compensating ring 37 1/2 x 32 3/4 No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 50 1/4

Length of plain part top 11 1/2" Thickness of plates crown 11/16" Description of longitudinal joint Weld No. of strengthening rings Yes

Working pressure of furnace by the rules 225 Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 11/16 Bottom 7/8

Pitch of stays to ditto: Sides 8" Back 8 x 7/4 Top 8 1/2 x 8 3/8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 211

Material of stays Steel Diameter at smallest part 1 3/4 Area supported by each stay 8 1/2 x 8 3/8 Working pressure by rules 251 End plates in steam space:

Material Steel Thickness 1 3/32" Pitch of stays 16 x 16 3/4 How are stays secured Double nuts Working pressure by rules 200 Material of stays Steel

Diameter at smallest part 6.33 Area supported by each stay 16 3/4 x 16 Working pressure by rules 235 Material of Front plates at bottom Steel

Thickness 7/8" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 13 1/2" wide Working pressure of plate by rules 200

Diameter of tubes 2 3/4" Pitch of tubes 4 1/4 x 4 1/4 Material of tube plates Steel Thickness: Front 31/32 Back 13/16 Mean pitch of stays 9 1/4"

Pitch across wide water spaces 13 1/2" Working pressures by rules 225 Girders to Chamber tops: Material Cast Steel Depth and thickness of girder at centre 10" x 1 5/8" Length as per rule 32 1/2" Distance apart 8 3/8" Number and pitch of stays in each 3 @ 8 1/2"

Working pressure by rules 228 Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately Yes

Diameter - Length - Thickness of shell plates - Material - Description of longitudinal joint - Diam. of rivet holes - Pitch of rivets - Working pressure of shell by rules - Diameter of flue - Material of flue plates - Thickness - If stiffened with rings - Distance between rings - Working pressure by rules - End plates: Thickness - How stayed - Working pressure of end plates - Area of safety valves to superheater - Are they fitted with easing gear

**VERTICAL DONKEY BOILER** - Manufacturers of Steel

No. *None* Description \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_  
 Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_  
 If fitted with casing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_  
 Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_  
 Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_  
 Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_  
 Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied: - 2 Bolts & nuts for crosshead. 2 Crank pin bolts & nuts. 4 Bolts & nuts for main bearings. 1 Set coupling bolts & nuts. 1 Set packing rings & springs for each piston. Feed & bilge pump valves & seats. Assorted bolts. Iron of various sizes. 1 Piece Crank shaft. Propeller shaft. 4 Propeller blades & 2 sets studs & nuts. Stern bush. Crank trusses. Crosshead trusses. Eccentric straps & rod. Piston rod & nut. Slide valve rod each size. Thrust nut for H.P. Set feed check seats. etc. etc.

The foregoing is a correct description, **Kawasaki Dockyard Co., Ltd.** Manufacturer.

For *Arthur Jones* Secretary. 23<sup>rd</sup> Dec 1907 to 5<sup>th</sup> Feb 1909  
 5<sup>th</sup> Feb 1909 to 5<sup>th</sup> June 1909  
 Dates of Survey: During progress of work in shops - 23<sup>rd</sup> Dec 1907 to 5<sup>th</sup> Feb 1909  
 During erection on board vessel - 5<sup>th</sup> Feb 1909 to 5<sup>th</sup> June 1909  
 building -  
 Total No. of visits: Continuous attendance Is the approved plan of main boiler forwarded herewith  Yes  No

Dates of Examination of principal parts - Cylinders	11.9.08	23.10.08	5.11.08	10.11.08	27.11.08	28.9.08	25.8.08	Covers	19.8.08	Pistons	3.7.08	etc	Rods	12.6.08
Connecting rods	12.6.08	Crank shaft	31.7.08	Thrust shaft	28.9.08	Tunnel shafts	7.11.08	Screw shaft	9.12.08	Propeller	29.1.09			
Stern tube	9.12.08	Steam pipes tested	23.3.09	Engine and boiler seatings	29.1.09	Engines holding down bolts	1.3.09							
Completion of pumping arrangements	30.4.09	Boilers fixed	24.2.09	Engines tried under steam	30.4.09									
Main boiler safety valves adjusted	23.4.09	Thickness of adjusting washers	3/8.	Lock nuts on adjusting screws										
Material of Crank shaft	Steel	Identification Mark on Do.	Claydon	Material of Thrust shaft	Steel	Identification Mark on Do.	LLOYDS							
Material of Tunnel shafts	Steel	Identification Marks on Do.	A.L.J.	Material of Screw shafts	Steel	Identification Marks on Do.	LLOYDS							
Material of Steam Pipes	Copper (S.D. 1 Breg.)	7" dia	Test pressure	400 lbs.										

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
 The machinery has been made & fitted in accordance with the requirements of the Rules, under special survey, & the workmanship throughout has been found good.  
 The cylinders have been tested to 290 lbs, 200 lbs, & 100 lbs per sq. in hyd. pressure respectively.  
 Newden's system of forced draught is fitted.  
 The vessel ran a satisfactory trial attaining a speed of 15 1/2 knots.

The machinery is in my opinion eligible for the notation in the Register Book of + LMC 6.09.  
 The report on the Electric Lighting will be sent shortly.

It is submitted that this vessel is eligible for THE RECORD. + LMC 6.09 ELEC LIGHT F.D.  
 J.R.R. 22.6.09  
 Arthur Jones  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee	445 £ 2 : 11	When applied for,	3.6.1909
Special	4. 934 £ 95 : 7	When received,	19.6.09
Donkey Boiler Fee	4. 25 £		
Travelling Expense (if any)	£		

Committee's Minute  
 Assigned + LMC 6.09  
 F.D. Elec. lights  
 TUES. 22 JUN 1909  
 MACHINERY CERTIFICATE WRITTEN



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