Rpt. 4.

REPORT ON MACHINERY.

No. 1684

Port of Kobe

Received at London Office TUE-7 DEC. 1915

No. in Reg. Book. Survey held at Osaka Date, first Survey 4th March Last Survey 29th Sept. 1915

on the Steel Single Screw Steamer "Kouan Maru" (Number of Visits)

Tons: Gross 2671, Net 1656

Master Built at Osaka By whom built The Osaka Iron Works Ld When built 1915

Engines made at Osaka By whom made The Osaka Iron Works, Lim. when made 1915

Boilers made at do By whom made do when made do

Registered Horse Power Owners The Osaka Shosen K. Kaisha Port belonging to Osaka

Nom. Horse Power as per Section 28 283 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 20" 33" 57" Length of Stroke 39" Revs. per minute 80 Dia. of Screw shaft as per rule 11.8 as fitted 12" Material of screw shaft Steel

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 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 Fits tightly If two liners are fitted, is the shaft lapped or protected between the liners – Length of stern bush 4'-6"

Dia. of Tunnel shaft as per rule 10.61 as fitted 10 3/4 Dia. of Crank shaft journals as per rule 11.14 as fitted 11 1/2 Dia. of Crank pin 11 1/2" Size of Crank webs 16 1/4 × 7 1/2 Dia. of thrust shaft under collars 11 1/2" Dia. of screw 14'-3" Pitch of Screw 15'-0" No. of Blades 4 State whether moveable No Total shaped surface 64.8 □'

No. of Feed pumps 2 Diameter of ditto 3 1/4" Stroke 24" Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 24" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines 3 Sizes of Pumps Bal. Dup. 7 1/2 stm. 8 1/2 water 9 stroke; Gen. " 7 1/2 " 5 " 6 "; Weirfeed 18 " 6 " 15 " No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Centre 3 1/2" Wings each 2 1/2" Tunnel 2 1/2" In Holds, &c. Two each hold 3 1/2".

No. of Bilge Injections 1 sizes 6" 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 –

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 8th July of Stern Tube 8th July Screw shaft and Propeller 13th July

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

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. Dunlop & Co. & Leeds Forge

Total Heating Surface of Boilers 4016 □' 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 3rd & 13 July 1915 No. of Certificate 82 & 83

Can each boiler be worked separately Yes Area of fire grate in each boiler 45 □' No. and Description of Safety Valves to each boiler Two. Direct spring Area of each valve 5.94 □" 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 Mean dia. of boilers 13'-0" Length 12'-0" Material of shell plates Steel

Thickness 1 1/4" Range of tensile strength 28/32 Ton Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Doub. riv. long. seams Doub. Straps treble 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 1/8 inside

Per centages of strength of longitudinal joint rivets 89.2 plate 85.4 Working pressure of shell by rules 200 lbs Size of manhole in shell 12 × 16"

Size of compensating ring 30" × 34" × 1 5/16 No. and Description of Furnaces in each boiler 2 Deighton Material Steel Outside diameter 40 1/4"

Length of plain part top – bottom – Thickness of plates crown – bottom 9/16 Description of longitudinal joint Weld. No. of strengthening rings –

Working pressure of furnace by the rules 218 lbs Combustion chamber plates: Material Steel Thickness: Sides 11/16 Back 11/16 Top 11/16 Bottom 7/8

Pitch of stays to ditto: Sides 8 3/4 × 8 3/4 Back 8 1/2 × 9 Top 8 × 9 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 214 lbs

Material of stays Steel Area at smallest part 1.79 □" Area supported by each stay 76 1/2 □" & 100.6 Working pressure by rules 210 lbs End plates in steam space: Material Steel Thickness 1 3/8 Pitch of stays 24 × 17 1/2 How are stays secured Doub. nuts & 8 1/2 × 7/8 washers Working pressure by rules 203 lbs Material of stays Steel

Area at smallest part 8.76 □" Area supported by each stay 24 × 17 1/2 Working pressure by rules 216 lbs Material of Front plates at bottom Steel

Thickness 7/8 Material of Lower back plate Steel Thickness 7/8 Greatest pitch of stays 13 7/8 Low. sp. Working pressure of plate by rules 200 lbs

Diameter of tubes 3" Pitch of tubes 4 1/8 × 4 3/8 Material of tube plates Steel Thickness: Front 7/8 Back 13/16 Mean pitch of stays 10 3/4"

Pitch across wide water spaces 13 1/2 doub. 3/4 Working pressures by rules 200 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 10 × 15/16 two plate 7 1/2 × 1 5/8 Length as per rule 34 1/2 Distance apart 9 1/2 Number and pitch of stays in each 3 @ 8"

Working pressure by rules 209 lbs Superheater or Steam chest; how connected to boiler – Can the superheater be shut off and the boiler worked separately 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. ____ *Description* None ✓

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 easing 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 crank pin bolts ✓ 2 crosshead bolts ✓ 2 main bearing bolts Set coupling bolts ✓ Set feed & bilge pump valves ✓ Set piston springs. Assorted iron bolts & nuts. ✓

The foregoing is a correct description,

OSAKA IRON WORKS, LTD.

T. Yamaguchi *Manufacturer.*

MANAGING DIRECTOR.

Dates of Survey while building	During progress of work in shops-	March 4th, 11th, 21st April 12, 15 May 4th, 14, 20 June 1st, 11, 21, 24
	During erection on board vessel	July 3rd, 8, 13, 15 Aug 18, 25, 28 Sep 2nd, 14, 29 1915 {Also 12 visits for shafts to Kobe Steel Wks 18/8/14 to 11/3/15.
	Total No. of visits	22

Is the approved plan of main boiler forwarded herewith Yes ✓

" " " *donkey* " " " None

Dates of Examination of principal parts—*Cylinders* 4/3 1/6 etc *Slides* 1/6 etc *Covers* 1/6, 24/6 etc *Pistons* 1/6 24/6 etc *Rods* 24/6 etc

Connecting rods 1/6 etc *Crank shaft* 18/8/14 - 11/3/15 Kobe Steel Works *Thrust shaft* 27/10/14 - 31/3/15 Kobe Ste. Wks. *Tunnel shafts* 7/9/14 - 19/12/14 Kobe Steel Wks *Screw shaft* 2/9/14 - 19/12/14 Kobe Steel Wks. *Propeller* July 13th

Stern tube 1/6, 8/7 etc *Steam pipes tested* 18/8 *Engine and boiler seatings* 18/8 3/7 etc *Engines holding down bolts* 18/8

Completion of pumping arrangements 25/8 *Boilers fixed* 18/8 *Engines tried under steam* 28/8

Main boiler safety valves adjusted 28/8 *Thickness of adjusting washers* 3/8 & 7/16

Material of Crank shaft Steel *Identification Mark on Do.* LLOYDS 11.3.15 A.L.J. R *Material of Thrust shaft* Steel *Identification Mark on Do.* LLOYDS 19.12.14 A.L.J.

Material of Tunnel shafts Steel *Identification Marks on Do.* LLOYDS 19.12.14 A.L.J. R *Material of Screw shafts* Steel *Identification Marks on Do.*

Material of Steam Pipes Steel ✓ *Test pressure* 600 lbs. ✓

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

The machinery has been made & fitted in accordance with the Rules & the drawings & the workmanship has been found good throughout.

The vessel is eligible in my opinion for the notation + L.M.C. 9.15

It is submitted that this vessel is eligible for THE RECORD. +LMC 9.15. F.D.

J.M. [signature] 14/1/16.

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

The amount of Entry Fee..	YEN 20.00	When applied for, 21.10.1915
Special	YEN 512.00	
Donkey Boiler Fee .. .. £	: :	When received, Nov. [illegible]
Travelling Expenses (if any) £	: :	

A. L. Jones

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. JAN. 14. 1916

Assigned + L.M.C. 9.15

MACHINERY CERTIFICATE WRITTEN.