

REPORT ON MACHINERY.

Port of *Glasgow*.Received at London Office *THUR. 22 APR 1897*No. in Survey held at *Glasgow*Date, first Survey *16 March 1896* Last Survey *16 April 1897*

Reg. Book.

(Number of Visits.....)

on the *Screw Steamer Kawachi Maru*.Gross *5229*
Tons Net *3688*Master *Thompson* Built at *Glasgow*By whom built *Kapier, Shanks & Bell*.When built *1894*.Engines made at *Glasgow*By whom made *Onismuir & Jackson*when made *1894*.Boilers made at *Glasgow*By whom made *Onismuir & Jackson*when made *1894*.

Registered Horse Power

Owners *Hippon Yusen Kaisha Ltd. Kwaichu* Port belonging to *Tokio*Nom. Horse Power as per Section 28 *514* *544*Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Two screw Triple Expansion* No. of Cylinders *Three* No. of Cranks *Three*
 Diameter of Cylinders *20"-33½"-56"* Length of Stroke *48"* Revolutions per minute *48* Diameter of Screw shaft *12½"*
 Diameter of Tunnel shaft *12"* Diameter of Crank shaft journals *12½"* Diameter of Crank pin *12½"* Size of Crank webs *18½" x 8½"*
 Diameter of screw *15'0"* Pitch of screw *14'0"* No. of blades *4* State whether moveable *Yes* Total surface *615 sq feet*
 No. of Feed pumps *2* Diameter of ditto *3¼"* Stroke *21"* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *2* Diameter of ditto *3¼"* Stroke *21"* Can one be overhauled while the other is at work *Yes*
 No. of Donkey Engines *Four* Sizes of Pump *(7½" x 5" x 6") (9" x 12" x 10") (10" x 8" x 12") (5½" x 8" x 5")* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *Three:—3½" dia. No. 1 Hold: 3½" dia. No. 2 Hold: 3½" dia. No. 3 Hold: 3½" dia. No. 4 Hold: 3½" dia. No. 5 Hold: 3½" dia. Tunnel well One 3½" dia.*
 No. of bilge injections *2* sizes *6¼"* Connected to condenser, or to circulating pump *C.P.* Is a separate donkey suction fitted in Engine room & size *Yes: 3½" dia.*
 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 *Below*
 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*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *New vessel* Are the screw shaft tunnels watertight *Yes*
 Are they fitted with watertight doors *Yes* worked from *Engine room platforms*

BOILERS, &c.—(Letter for record *\$*) Total Heating Surface of Boilers *9002 sq ft* Is forced draft fitted *No*
 No. and Description of Boilers *Multi Cyl 2 Double ended & 2 Single ended* Working Pressure *200 lbs* Tested by hydraulic pressure to *400 lbs*
 Date of test *24/11/96* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *102 sq ft* No. and Description of safety valves to
 each boiler *Two: Direct Spring* Area of each valve *9.62 sq in* 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 *About 4 feet* Mean diameter of boilers *13.5"*
 Length *14'0"* Material of shell plates *Steel* Thickness *1½"* Description of riveting: circum. seams *Double* long. seams *Double*
 Diameter of rivet holes in long. seams *1½"* Pitch of rivets *9½"* *4½"* Lap of plates or width of butt straps *21"*
 Per centages of strength of longitudinal joint *88* Working pressure of shell by rules *223 lbs* Size of manhole in shell *16" x 12"*
 Size of compensating ring *4 inches dia* No. and Description of Furnaces in each boiler *6: Corrugated* Material *Steel* Outside diameter *41"*
 Length *36 feet* Thickness of plates *9"* *7½"* Description of longitudinal joint *Welded* No. of strengthening rings *✓*
 Working pressure of furnace by the rules *216 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *5"* Back *✓* Top *5"* Bottom *15"*
 Pitch of stays to ditto: Sides *8½" x 8½"* Back *✓* Top *8½" x 8½"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *202 lbs*
 Material of stays *Steel* Diameter at smallest part *1½"* Area supported by each stay *66½ sq in* Working pressure by rules *208 lbs* End plates in steam space:
 Material *Steel* Thickness *1½"* Pitch of stays *18½" x 18"* How are stays secured *By nuts & washers* Working pressure by rules *203 lbs* Material of stays *Steel*
 Diameter at smallest part *3½"* Area supported by each stay *333 sq in* Working pressure by rules *203 lbs* Material of Front plates at bottom *Steel*
 Thickness *13"* Material of Lower back plate *✓* Thickness *✓* Greatest pitch of stays *✓* Working pressure of plate by rules *✓*
 Diameter of tubes *3¼"* Pitch of tubes *4½" x 4½"* Material of tube plates *Steel* Thickness: Front *13"* Back *3"* Mean pitch of stays *9.85"*
 Pitch across wide water spaces *14½"* Working pressures by rules *263 lbs* *208 lbs* Girders to Chamber tops: Material *Steel* Depth and
 thickness of girder at centre *9" x 2"* Length as per rule *28"* Distance apart *8½"* Number and pitch of Stays in each *3: 8½"*
 Working pressure by rules *353 lbs* Superheater or Steam chest: *None* 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 *✓*

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DONKEY BOILER— Description

Made at _____ By whom made _____ When made _____ Where fixed _____
Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____
No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____
Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____
Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____
Lap of plating _____ Per centage of strength of joint _____ Rivets _____ 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 _____
Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____
Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— 1 Piston Rod, 2 Joint rings, 2 Packing rings, 2 do. for HP piston valves, 1 Crank shaft, 2 propeller shafts, 4 Propeller blades, 2 Stern Bushes, 24 propeller studs, 1 pair Crank pin brasses, 2 pairs crosshead brasses, 1 pair main bearing bushes, 4 crosshead guide shoes, 1 pair Eccentric straps, 1 Slide Rod, 1 Air pump rod, 1 Set Valve springs, 50 Condenser tubes, 50 Boiler do., 1 Grindstone for centrifugal pump, and spare gear required by Rules.

The foregoing is a correct description,

Manufacturer.

Wm. & J. A. Korn

Dates of Survey while building
During progress of work in shops— 1896. March 16, 19, 23, April 1, 2, 9, 16, 16, 21, 23, 29, May 5, 8, 12, 16, 18, 20, 26, 28, 29, June 9, 10, 11, 14, 19, 24, July 2, 28, 29, Aug. 3, 5, 4, 14, 18, 25, 31, 31, Sept. 2, 3, 7, 8, 9, 10, 11, 14, 14, 21, 22, 23, 25, 29, 30, Oct. 1, 5, 9, 15, 19, 24, Nov. 3, 6, 9, 12, 16, 18, 24, 24, 30, Dec. 4, 4, 23, 1897. Jan. 11, 13, 15, 20, 26, 26, 24, 28, Feb. 2, 4, 5, 8, 10, 15, 16, 14, 18, 19, 22, 23, 26, March 1, 2, 3, 5, 9, 10, 12, 14, 24, 25, 29, April 5, 12, 13, 15, 16, 104
Total No. of visits

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

The Engines and Boilers of this vessel have been built under Special Survey and the materials and workmanship are good. When completed they were examined under full steam and worked satisfactorily.

The Machinery throughout is now in good and efficient condition and eligible in our opinion to have the record of **L.M.C. 4, 97** marked in the Society's Register Book.

It is submitted that
this vessel is eligible for
THE RECORD + L.M.C. 4. 97

J.E.S.

22. 4. 97

The amount of Entry Fee. . . £ 3 : " : "
Special Damage £ 45 : 14 : "
Donkey Boiler Fee £ 32 : 34 : "
Travelling Expenses (if any) £ " : " : "
When applied for, 16/4/97
When received, 14/4/97
Wm. Austin. A.M.R.
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. 23 APL 1897

Assigned

+ L.M.C. 4 97



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