

# REPORT ON MACHINERY.

Port of Glasgow

Received at London Office 18

No. in Survey held at Supplementary Report Date, first Survey                      Last Survey 18  
Reg. Book.                      (Number of Visits                     )

on the Single ended boilers S.S. Kangawa Maru

Tons <sup>Gross</sup>  
<sub>Net</sub>

Master                      Built at                      By whom built                      When built                     

Engines made at                      By whom made                      when made                     

Boilers made at Glasgow By whom made A & W Henderson when made 1896

Registered Horse Power                      Owners                      Port belonging to                     

Nom. Horse Power as per Section 28                      Is Electric Light fitted                     

**ENGINES, &c.—Description of Engines**

Description of Engines		No. of Cylinders	No. of Cranks
Diameter of Cylinders	Length of Stroke	Revolutions per minute	Diameter of Screw shaft as per rule as fitted
Diameter of Tunnel shaft as per rule as fitted	Diameter of Crank shaft journals	Diameter of Crank pin	Size of Crank webs
Diameter of screw	Pitch of screw	No. of blades	State whether moveable
No. of Feed pumps	Diameter of ditto	Stroke	Can one be overhauled while the other is at work
No. of Bilge pumps	Diameter of ditto	Stroke	Can one be overhauled while the other is at work
No. of Donkey Engines	Sizes of Pumps	No. and size of Suctions connected to both Bilge and Donkey pumps	
In Engine Room	In Holds, &c.		
No. of bilge injections	sizes	Connected to condenser, or to circulating pump	Is a separate donkey suction fitted in Engine room & size
Are all the bilge suction pipes fitted with roses	Are the roses in Engine room always accessible		Are the sluices on Engine room bulkheads always accessible
Are all connections with the sea direct on the skin of the ship	Are they Valves or Cocks		
Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates	Are the discharge pipes above or below the deep water line		
Are they each fitted with a discharge valve always accessible on the plating of the vessel	Are the blow off cocks fitted with a spigot and brass covering plate		
What pipes are carried through the bunkers	How are they protected		
Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times			
Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges			
When were stern tube, propeller, screw shaft, and all connections examined in dry dock		Is the screw shaft tunnel watertight	
Is it fitted with a watertight door		worked from	

If not, state whether, and when, one will be sent?

**BOILERS, &c.—** (Letter for record S) Total Heating Surface of Boilers See other report Is forced draft fitted                     

No. and Description of Boilers 2 Single ended boilers Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs

Date of test 10-9-96 Can each boiler be worked separately Yes Area of fire grate in each boiler 50 sq ft No. and Description of safety valves to each boiler 2 Spring loaded Area of each valve 4.9 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 stand clear Mean diameter of boilers 159"

Length 10' 0" Material of shell plates Steel Thickness 1 7/16" Description of riveting: circum. seams laps 2 Rivets long. seams Double Butt, 5 Rivets

Diameter of rivet holes in long. seams 1 7/16" Pitch of rivets 9 5/8" Lap of plates or width of butt straps 21 3/4" x 1 7/16"

Per centages of strength of longitudinal joint <sup>rivets</sup> 87.3 <sub>plate</sub> 85.07 Working pressure of shell by rules 225 lbs Size of manhole in shell 12' x 16"

Size of compensating ring McKeils No. and Description of Furnaces in each boiler 3 Morrison's Material Steel Outside diameter 4 1/2"

Length of plain part <sup>top</sup> 7.1" <sub>bottom</sub>                      Thickness of plates <sup>crown</sup> 9/16" <sub>bottom</sub>                      Description of longitudinal joint weld No. of strengthening rings Carrying

Working pressure of furnace by the rules 213 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/16" Back 21/32" Top 1/16" Bottom 1/8" x 2 Turns

Pitch of stays to ditto: Sides 9" Back 8 1/2" Top 9" x 7 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 202 lbs

Material of stays Steel <sup>Section</sup> Diameter at smallest part 2.31 sq in Area supported by each stay 89.2 sq in Working pressure by rules 233 lbs End plates in steam space: Material Steel Thickness 7/16" Pitch of stays 18" x 1 7/8" How are stays secured Double Nuts & darning strip Working pressure by rules 214 Material of stays Steel

<sup>Section</sup> Diameter at smallest part 7.50 sq in Area supported by each stay 310 sq in Working pressure by rules 217 lbs Material of Front plates at bottom Steel

Thickness 7/8" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 12 1/4" Working pressure of plate by rules 202 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 1/16" to 4 7/8" x 4 3/8" Material of tube plates Steel Thickness: Front 1" Back 25/32" Mean pitch of stays 10' 2"

Pitch across wide water spaces 14" Working pressures by rules approved Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8" x 2 x 1" Length as per rule 25 3/4" Distance apart 9" Number and pitch of Stays in each 2 x 7 1/2"

Working pressure by rules 299 lbs Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked separately                     

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

                     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

14870 90

**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. \_\_\_\_\_

Plates \_\_\_\_\_

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:—

The foregoing is a correct description,

*James W. Henderson* Manufacturer D.

Dates of Survey while building

During progress of work in shops - -

During erection on board vessel - -

Total No. of visits

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

See attached report  
*C. H. Cromeyer*

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

The amount of Entry Fee..	£	:	:	When applied for,
Special .. .. .	£	:	:	.....18.....
Donkey Boiler Fee .. .. .	£	:	:	When received,
Travelling Expenses (if any) £	:	:	:	.....18.....

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

Committee's Minute

1UES 22 DEC 1896

Assigned



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