

# REPORT ON MACHINERY.

4667

No. 4664

No. in Survey held at  
Reg. Book.  
on the

Glasgow

Date, first Survey 14<sup>th</sup> May

Received at London Office 13  
Last Survey 16<sup>th</sup> October 1886  
(Number of Visits 33) 639.99  
Tons 391.33

S.S. "Wainui"

Master A. Watson Built at Dumbarton By whom built Messrs Murray Bros. When built 1886  
Engines made at Glasgow By whom made Messrs Miller & Houston when made 1886  
Boilers made at " By whom made " when made 1886  
Registered Horse Power 95 Owners Mr J. H. Williams Port belonging to Wellington

## ENGINES, &c.—

Description of Engines Compound Inverted direct acting  
Diameter of Cylinders 25" x 50" Length of Stroke 36" No. of Rev. per minute 85 Point of Cut off, High Pressure 18" 1/2 Low Pressure 18" 1/2  
Diameter of Screw shaft 9 1/4" Diam. of Tunnel shaft 9" Diam. of Crank shaft journals 9 1/4" Diam. of Crank pin 9 1/4" size of Crank webs 6 1/2" x 11 1/2" built  
Diameter of screw 11 ft Pitch of screw 15" 6 No. of blades 4 state whether moveable No total surface 38 sq. ft  
No. of Feed pumps 2 diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work Yes  
No. of Bilge pumps 2 diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work Yes  
Where do they pump from the bilges of each compartment  
No. of Donkey Engines One Size of Pumps 4 1/2" dia. 8" cyl. 9" stroke Where do they pump from the sea, ballast tanks, bilges of each compartment and hotwell  
Are all the bilge suction pipes fitted with roses Yes Are the roses always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes  
No. of bilge injections One and sizes 3 1/2" dia Are they connected to condenser, or to circulating pump air pump  
How are the pumps worked By levers on Low pressure engine  
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 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 accessible at all times Yes  
Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges Yes  
When were stern tube, propeller, screw shaft, and all connections examined in dry dock previous to the vessel being launched  
Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from top platform

## BOILERS, &c.—

Number of Boilers One Description Cylindrical multitubular Whether Steel or Iron Steel  
Working Pressure 100 lbs Tested by hydraulic pressure to 200 lbs Date of test September 6<sup>th</sup> 1886  
Description of superheating apparatus or steam chest Vertical dome  
Can each boiler be worked separately Can the superheater be shut off and the boiler worked separately  
No. of square feet of fire grate surface in each boiler 63 sq. ft Description of safety valves direct spring No. to each boiler two  
Area of each valve 11.04 sq. ft Are they fitted with easing gear Yes No. of safety valves to superheater 1 area of each valve  
Are they fitted with easing gear Yes Smallest distance between boilers and bunkers 9" Diameter of boilers 14" 1"  
Length of boilers 10" 6" description of riveting of shell long. seams treble riv butt circum. seams dbl riv lap Thickness of shell plates 3/32"  
Diameter of rivet holes 1 1/16" whether punched or drilled drilled pitch of rivets 5 3/4" Lap of plating straps 16" x 5" full  
Per centage of strength of longitudinal joint 81% working pressure of shell by rules 105 lbs size of manholes in shell end plate 16" x 11"  
Size of compensating rings 6 1/2" x 13" No. of Furnaces in each boiler three  
Outside diameter 3' 9" length, top 6' 3" bottom 8' 1/2" thickness of plates 7/16" description of joint corrugated if rings are fitted 3 1/2" x 3 1/2" x 1/2"  
Greatest length between rings 6' 9" working pressure of furnace by the rules 111 lbs combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"  
Pitch of stays to ditto, sides 8" x 8 1/4" back 8 1/4" x 8 1/4" top 7" x 8 1/4" If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 113 lbs Diameter of stays at smallest part 1 1/2" screw working pressure of ditto by rules 23 lbs end plates in steam space, thickness 3/4"  
Pitch of stays to ditto 14" x 14" how stays are secured dbl nuts working pressure by rules 102 lbs diameter of stays at smallest part 2 1/4" fine thread working pressure by rules 112 lbs Front plates at bottom, thickness 3/4" Back plates, thickness 1/16"  
Greatest pitch of stays 13 1/2" x 14 1/2" working pressure by rules 100 lbs Diameter of tubes 3 1/2" pitch of tubes 14 1/4" x 4 1/4" thickness of tube plates, front 3/4" back 3/4" how stayed stay tubes pitch of stays 13 1/2" x 9 1/2" width of water spaces 6"  
Diameter of Superheater or Steam chest 30" length 4' 6" thickness of plates 7/16" description of longitudinal joint dbl riv lap diam. of rivet holes 15/16"  
Pitch of rivets 3 1/2" working pressure of shell by rules 145 lbs diameter of flue thickness of plates If stiffened with rings  
Distance between rings working pressure by rules end plates of superheater, or steam chest; thickness 5/8" how stayed 3-1 1/2" stays  
Superheater or steam chest; how connected to boiler dbl riv flange



7667 gles

**DONKEY BOILER—** Description *Vertical 3 cross tubes*  
Made at *Glasgow* by whom made *Messrs Muir & Houston* when made *1886* where fixed *in the stokehold*  
Working pressure *60 lbs* tested by hydraulic pressure to *120 lbs* No. of Certificate *1441* fire grate area *14 sq ft* description of safety valves *direct spring* No. of safety valves *one* area of each *7.04 sq ft* if fitted with easing gear *yes* if steam from main boilers can enter the donkey boiler *No* diameter of donkey boiler *4.9* length *10.4* description of riveting *double rivet lap*  
Thickness of shell plates *3/8* diameter of rivet holes *15/16* whether punched or drilled *drilled* pitch of rivets *3 1/2* lap of plating *5*  
percentage of strength of joint *73* thickness of crown plates *1/2* stayed by *three 1 1/2" straps*  
Diameter of furnace, top *3 1/2* bottom *4.2* length of furnace *5.6* thickness of plates *5/32* description of joint *single rivet lap*  
Thickness of furnace crown plates *1/2* stayed by *as above* working pressure of shell by rules *60 lbs*  
Working pressure of furnace by rules *75 lbs* diameter of uptake *9 3/4* thickness of plates *1/16* thickness of water tubes *3/8*

**SPARE GEAR.** State the articles supplied:— *2 top end bolts and nuts 2 bottom end bolts and nuts 2 main bearing bolts 1 set of coupling bolts 1 air pump rod 1 L.P. valve spindle 2 eccentric straps 1 pair of top and bottom end brasses 1 pair of main bearing brasses 1 propeller 2 pump lever links 1 set of air pump metallic valves 1 dozen condenser tubes 1 dozen boiler tubes assorted bolts &c 1 set of feed & bilge pump valves*  
*The foregoing is a correct description,*  
*Muir & Houston* Manufacturer.

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

*The Engines and Boilers of the above named vessel have been constructed under Special Survey they are of good material and workmanship and have been tried under steam with satisfactory results. They are now in good order and safe working condition and eligible in my opinion to be noted in the Register Book L. M. 6 10-86.*

*It is submitted that this vessel is eligible to have the notification + done 10.86 recorded.*

*19/10/86*

*[Large blue signature]*

The amount of Entry Fee .. £ *1 : - : -* received by me,  
Special .. £ *14 : 5 : -*  
Donkey Boiler Fee .. £ *- : - : -*  
Certificate (if required) .. £ *- : - : -* *18/10/1886*  
To be sent as per margin.  
(Travelling Expenses, if any, £ - *8/-* .. )

*G. L. Hindmarsh*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

TUESDAY 19 OCT 1886

*+ L M 6*