

REPORT ON MACHINERY.

No. 6008

No. in Survey held at Paisley
Reg. Book.

Date, first Survey Feb 16th 1882 Last Survey Feb 15th 1883

on the Screw Steamer Urowaiti
Master Alexander Built at Paisley When built 1882
Engines made at Paisley By whom made Fleming & Ferguson when made 1882
Boilers made at Do By whom made Do when made 1882
Registered Horse Power 70 Owners James Mills Port belonging to Dunedin N.Z.

ENGINES, &c.—

Description of Engines Inverted Direct acting, Compound, Surface Condensing
Diameter of Cylinders 20" & 40" Length of Stroke 30" No. of Rev. per minute 90 Point of Cut off, High Pressure $\frac{3}{8}$ Low Pressure $\frac{3}{8}$
Diameter of Screw shaft 7" Diameter of Tunnel shaft $6\frac{3}{4}$ " Diameter of Crank shaft journals 7" Diameter of Crank pin 7" size of Crank webs $4\frac{1}{2} \times 8\frac{1}{2}$
Diameter of screw 10-0" Pitch of screw 13 $\frac{1}{4}$ " No. of blades Four state whether moveable Fast total surface 22 sq ft
No. of Feed pumps One diameter of ditto $3\frac{1}{2}$ " Stroke 15" Can one be overhauled while the other is at work —
No. of Bilge pumps One diameter of ditto $3\frac{1}{2}$ " Stroke 15" Can one be overhauled while the other is at work —
Where do they pump from Bilges & Holds
No. of Donkey Engines One & Hand Size of Pumps 4 pump x 10" Where do they pump from Tanks, sea, Hotwell
Bilges & Holds
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 $3\frac{1}{2}$ " Are they connected to condenser, or to circulating pump Circulating
How are the pumps worked By levers from L. P. 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 Before launching.
Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Engine Room at deck.

BOILERS, &c.—

Number of Boilers One Description Cylindrical, Multitubular (Bracing attached.)
Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test Dec^r 22nd 1882.
Description of ~~superheating apparatus~~ steam chest Vertical.
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 54 sq ft Description of safety valves Direct springs.
No. to each boiler Two area of each valve 15.7 sq ins Are they fitted with easing gear Yes
No. of safety valves to superheater — area of each valve — are they fitted with easing gear —
Smallest distance between boilers and bunkers ~~woodwork~~ 10"
Diameter of boilers 12-0" Length of boilers 9-0" description of riveting of shell long. seams Double, butt. circum. seams Double, lap.
Thickness of shell plates $\frac{13}{16}$ " diameter of rivet holes $1\frac{3}{16}$ " whether punched or drilled Punched pitch of rivets $4\frac{3}{4}$ "
Lap of plating 10" butt lap per centage of strength of longitudinal joint 75 working pressure of shell by rules 80 lbs
Size of manholes in shell $17\frac{1}{2} \times 13\frac{1}{2}$ " size of compensating rings $4\frac{1}{2} \times 3\frac{1}{4}$ "
No. of Furnaces in each boiler Three outside diameter 3-1" length, top 5-9" bottom 8-3"
Thickness of plates $\frac{7}{16}$ " description of joint Butt. if rings are fitted Yes greatest length between rings 5-9"
Working pressure of furnace by the rules 81 lbs
Combustion chamber plating, thickness, sides $\frac{1}{2}$ " back $\frac{1}{2}$ " top $\frac{1}{2}$ "
Pitch of stays to ditto sides 8" back 8" top 10×7 "
If stays are fitted with nuts or riveted heads Both working pressure of plating by rules 80 lbs
Diameter of stays at smallest part $1\frac{3}{8}$ screw working pressure of ditto by rules 105 lbs
End plates in steam space, thickness $\frac{3}{4}$ " pitch of stays to ditto 15" how stays are secured Nuts
Working pressure by rules 89 lbs diameter of stays at smallest part $2\frac{1}{4}$ " working pressure by rules 105 lbs
Front plates at bottom, thickness $\frac{3}{4}$ " Back plates, thickness $\frac{3}{4}$ " greatest pitch of stays 10" working pressure by rules 144 lbs

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Diameter of tubes $3\frac{1}{4}$ " pitch of tubes $4\frac{1}{2}$ " thickness of tube plates, front $\frac{3}{4}$ " back $\frac{7}{8}$ "
 How stayed *Rules + rules* pitch of stays 15×9 " width of water spaces 5 "
 Diameter of ~~Superheater or~~ Steam chest $2-0$ length $3-0$
 Thickness of plates $\frac{1}{2}$ " description of longitudinal joint *Welded* diameter of rivet holes — pitch of rivets —
 Working pressure of shell by rules — 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 $\frac{1}{2}$ " How stayed —
 Superheater or steam chest; how connected to boiler *Riveted*

DONKEY BOILER—

Description *Vertical with two cross tubes*
 Made at *Glasgowhead* By whom made *Clarke, Chapman & Guinness* made *1882* Tested *Nov^r 28th*
 Where fixed *In stockhold* working pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* No. of Certificate *1065*
 Fire grate area *16 sq ft* Description of safety valves *Direct spring* No. of safety valves *One* area of each *9.6 sq in*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *5' 6"* length *9-0* description of riveting *Lap, double*
 thickness of shell plates $\frac{1}{2}$ " diameter of rivet holes $\frac{7}{8}$ " whether punched or drilled *Punched*
 pitch of rivets $3\frac{1}{4}$ " lap of plating $4\frac{1}{4}$ " per centage of strength of joint *73*
 thickness of crown plates $\frac{9}{16}$ " stayed by *Five stays $1\frac{1}{2}$ " dia^r*
 Diameter of furnace, top $4-2\frac{1}{4}$ " bottom $4-8$ " length of furnace $3-10$ "
 thickness of plates $\frac{9}{16}$ " description of joint *Lap, single*
 thickness of furnace crown plates $\frac{9}{16}$ " stayed by *Same as above*
 Working pressure of shell by rules *85 lbs* working pressure of furnace by rules *80 lbs*
 diameter of uptake $1\frac{1}{4}$ " thickness of plates $\frac{3}{8}$ " thickness of water tubes $\frac{3}{8}$ "

The foregoing is a correct description,

Heming & Ferguson Manufacturer.

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

These Engines & Boilers have been constructed under special survey, they are of good material & workmanship, they have ^{been} well fitted on board & satisfactorily tested under steam. I am therefore of opinion that they are eligible to be classed "LLOYD'S M.C." 2-83 in the Register Book.

It is submitted that this vessel is eligible to have the notation 2 m.b 2-83 recorded.

19/2/83

The amount of Entry Fee £ *2: 0: 0* received by me,
 Special £ *10: 10: 0*
 Certificate (if required) £ *Gratis 14/2/1883*
 To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

Friday, 22nd February 1883.

+ [Signature]

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

Glasgow
 Lloyd's Register Foundation