

REPORT ON MACHINERY.

No. 5894

No. in Survey held at
Reg. Book.

Glasgow.

Date, first Survey Feb. 8th

Last Survey Oct 24th 1882

on the Screw Steamer "Kauatiro"

Tons 430.35
285.51

Master J. Watterson

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 Gibson & Co. Eng^{rs}

Port belonging to Dunedin

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 60 Point of Cut off, High Pressure $\frac{7}{8}$ Low Pressure $\frac{7}{8}$
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 $8\frac{1}{2} \times 4\frac{1}{2}$
Diameter of screw 10'-0" Pitch of screw 13'-0" No. of blades Four state whether moveable ~~Yes~~ 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 Each 4" 10" Where do they pump from Tanks, Sea, Bilges, Holdwell & 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 Low Engine
Are all connections with the sea direct on the skin of the ship No 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 ~~below~~ the deep water line Yes
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 level with deck.

BOILERS, &c.—

Number of Boilers One Description Cylindrical Multitubular.
Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test Sep 21st 1882
Description of ~~heating 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 acting springs.
No. to each boiler Two area of each valve 15.9 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 or 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 $4\frac{1}{2} \times \frac{3}{4}$ "
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

5894 gls
Diameter of tubes $3\frac{1}{4}$ " pitch of tubes $4\frac{1}{2}$ " thickness of tube plates, front $\frac{3}{4}$ " back $\frac{5}{8}$ "
How stayed *Tubes & ribs* 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 *Upright cylindrical*
Made at *Glasgow* By whom made *Blake, Chapman & Gurney* when made *Tested September 14th 1882*
Where fixed *In workshop* working pressure 80 lbs Tested by hydraulic pressure to 160 lbs No. of Certificate *477*
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 $5-0$ " length $9-0$ " description of riveting *Double, lap*
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 $4\frac{1}{8}$ " per centage of strength of joint 73
thickness of crown plates $\frac{9}{16}$ " stayed by *Dished & 5 stay*
Diameter of furnace, top $4-2\frac{1}{2}$ " bottom $4-8$ " length of furnace $3-10$ "
thickness of plates $\frac{9}{16}$ " description of joint *Single Lap*
thickness of furnace crown plates $\frac{9}{16}$ " stayed by *As above*
Working pressure of shell by rules 85 lbs working pressure of furnace by rules 80 lbs
diameter of uptake 14 " thickness of plates $\frac{3}{8}$ " thickness of water tubes $\frac{3}{8}$ "

The foregoing is a correct description,
Fleming & 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 satisfactorily fitted on board & tested under steam. I am therefore of opinion that they are eligible to be classed "LLOYD'S M.C., 10-82" in the Register Book.

The amount of Entry Fee .. £ $2 : 0 : 0$ received by me,
Special *W.E.P.* .. £ $10 : 10 : 0$
Certificate (if required) .. £ *Grades 3/11* 1882
To be sent as per margin.
(Travelling Expenses, if any, £ ..)

Committee's Minute

Tuesday 7th November, 1882.

+ L M B

Submitted that this vessel is eligible to have Lloyd's M.C. 10-82
Walter E. Robinson
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
Glasgow