

REPORT ON MACHINERY.

No. *634/4*

Received at London Office

TUESDAY 1 JAN 1884

No. in Survey held at *Glasgow*

Date, first Survey *March 1883* Last Survey *Dec 27 1883*

Reg. Book.

(Number of Visits *02*)

Tons *3986.99*
2654.96

on the *Screw Steamer "Raparhu"*

Master _____ Built at *Glasgow* By whom built *John Elder & Coy* When built *1883*

Engines made at *Glasgow* By whom made _____ when made *1883*

Boilers made at _____ By whom made _____ when made *1883*

Registered Horse Power *600* Owners *New Zealand Shipping Coy* Port belonging to *Glasgow*

ENGINES, &c.

Description of Engines *Compound Inverted Direct Acting*

Diameter of Cylinders *46" 88"* Length of Stroke *67* No. of Rev. per minute *48* Point of Cut off, High Pressure *6* Low Pressure *65*

Diameter of Screw shaft *14"* Diam. of Tunnel shaft *16"* Diam. of Crank shaft journals *14"* Diam. of Crank pin *1 1/2"* size of Crank webs *12 3/4" x 23-11"*

Diameter of screw *18 1/2"* Pitch of screw *25 1/2"* No. of blades *four* state whether moveable *Yes* total surface *108 ft*

No. of Feed pumps *Two* diameter of ditto *6 1/2"* Stroke *25 1/2"* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *Two* diameter of ditto *6 1/2"* Stroke *25 1/2"* Can one be overhauled while the other is at work *Yes*

Where do they pump from *All Compartments*

No. of Donkey Engines *One* Size of Pumps *12" Cyls 4" x 12"* Where do they pump from *Sea Bilge & 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 *1 1/2" pipe* Are they connected to condenser, or to circulating pump *to Condenser*

How are the pumps worked *By Screw*

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 *Main Steam pipe* How are they protected *By iron casing*

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 axle, propeller, screw shaft, and all connections examined in dry dock *On Ship previous to being launched*

Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Upper platform*

BOILERS, &c.

Number of Boilers *Three* Description *Round Horizontal* Whether Steel or Iron *Steel*

Working Pressure *110 lbs* Tested by hydraulic pressure to *220 lbs* Date of test *19th November 1883*

Description of superheating apparatus or steam chest *None*

Can each boiler be worked separately *Yes* Can the superheater be shut off and the boiler worked separately *Yes*

No. of square feet of fire grate surface in each boiler *130 ft* Description of safety valves *Direct Spring* No. to each boiler *Three*

Area of each valve *21.64* Are they fitted with easing gear *Yes* No. of safety valves to superheater *4* area of each valve _____

Are they fitted with easing gear _____ Smallest distance between boilers and bunkers or woodwork *12"* Diameter of boilers *13'-8"*

Length of boilers *17'-3"* description of riveting of shell long. seams *Double riveted* circum. seams *Double riveted* Thickness of shell plates *1 1/16"*

Diameter of rivet holes *1 1/16"* whether punched or drilled *Drilled* pitch of rivets *6'8" x 3 1/16"* Lap of plating *18" x 1 1/16" x 1 1/16"*

Per centage of strength of longitudinal joint *82* working pressure of shell by rules *122 lbs* size of manholes in shell *16" x 12"*

Size of compensating rings *Layed rings fitted* No. of Furnaces in each boiler *Six*

Mean Outside diameter *3'-4"* length, top *4 ft* bottom *3 ft* thickness of plates *7/16"* description of joint *Corrugated* if rings are fitted _____

Greatest length between rings _____ working pressure of furnace by the rules *125* combustion chamber plating, thickness, sides *10' 132* bottom *9 1/16"* top *15 1/32*

Pitch of stays to ditto, sides *4 3/4" x 7 3/4"* top *4 3/4" x 7 3/4"* stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *112*

Diameter of stays at smallest part *1 1/2"* working pressure of ditto by rules *133 lbs* end plates in steam space, thickness *13/16"*

Pitch of stays to ditto *14 3/4" x 14 3/4"* how stays are secured *by double nuts* working pressure by rules *112 lbs* diameter of stays at smallest part *2 3/8" (Iron)*

Greatest pitch of stays _____ working pressure by rules _____ Front plates at bottom, thickness *7/16"* Back plates, thickness _____

plates, front *7/16"* back *7/16"* Diameter of tubes *3 1/2"* pitch of tubes *4 3/4"* thickness of tube _____

Diameter of Superheater or Steam chest _____ length _____ thickness of plates _____ description of longitudinal joint _____ diam. 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 _____ and plates of superheater, or steam chest; thickness _____ how stayed _____

Superheater or steam chest; how connected to boiler _____

State of Report is also sent on the Hull of the Ship

9010-81575-01406

6374 JB.

DONKEY BOILER— Description Round Horizontal
 Made at Glasgow by whom made Anderson & Gall when made 1883 where fixed On Upper deck
 Working pressure 110 lbs tested by hydraulic pressure to 220 lbs No. of Certificate 1268 fire grate area 11 1/2 description of safety valves Direct Spring
 No. of safety valves Two area of each 7" if fitted with easing gear Yes if steam from main boilers can enter the donkey boiler No
 diameter of donkey boiler 8' 2" length 8' 9" description of riveting Roller riveted lap
 Thickness of shell plates 10/16" diameter of rivet holes 15/16" whether punched or drilled Drilled pitch of rivets 4 1/2" x 2 1/2" lap of plating 4"
 percentage of strength of joint 48 thickness of crown plates 13/16" stayed by Stays 2 3/8" 15 1/2" x 13" pitch fitted with riveted washers
 Diameter of furnace, top 2' 6" bottom — length of furnace 6' thickness of plates 7/16" 9/16" description of joint double strapped
 Thickness of furnace crown plates 10/32" stayed by Screw stays 1 1/4" dia 7 1/2" x 7 1/2" pitch working pressure of shell by rules 133 lbs
 Working pressure of furnace by rules 110 lbs diameter of uptake — thickness of plates — thickness of water tubes —

SPARE GEAR. State the articles supplied:— 1 pair of Crank pin brasses, 1 Oiler pump, bucket & rod, 1 delivery valve seat & studs, 1 main bearing bolts, 1 pair connecting rod bolts, 1 set Coupling bolts, 2 feet & 2 vice valves with seats for Prop. U. blades (Crane), 1 Tunnel shaft, 1 patent coupling. In addition to the above a considerable quantity of other parts has been supplied.
 The foregoing is a correct description,

John Elder & Co Manufacturer.
P. A. D. Bruce Douglas



General Remarks (State quality of workmanship, opinions as to class, &c.) These Engines & Boilers are of good workmanship and material and are now in good order & safe working condition & eligible in my opinion to be used in the Register Book ✠ Lloyds M.C. 14/83

Handwritten notes:
 not mentioned that there should be a...
 to be sent to the...
 & will be...
 M. 1/1/84

The amount of Entry Fee £ 13 : 0 : 0 received by me,
 Special .. £ 50 : 0 : 0
 Donkey Boiler Fee .. £ 0 : 0 : 0
 Certificate (if required) .. £ 0 : 0 : 0 31/12/1883
 To be sent as per margin.
 (Travelling Expenses, if any, £ - 8/-)

James Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 Clyde District

Committee's Minute TUESDAY 1 JAN 1884

