

# REPORT ON MACHINERY.

No. 634/4

No. in Survey held at Glasgow  
Reg. Book.

Date, first Survey March 1883 Last Survey Dec 27 1883  
(Number of Visits 2)

Received at London Office TUESDAY 1 JAN 1884

on the Screw Steamer "Rapehu"

Tons 2654.96

Master John Elder & Co Built at Glasgow By whom built John Elder & Co 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 Co 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 6.5  
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 1/2"  
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 15" pipe Are they connected to condenser, or to circulating pump Condensate  
How are the pumps worked By Levers  
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 tube, 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 19 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 15/16"  
Diameter of rivet holes 1 1/8" whether punched or drilled Drilled pitch of rivets 6' 8" x 3 1/2" Lap of plating 18" x 3/16" & 1/8"  
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  
Outside diameter 3' 4" length, top 4 ft bottom 3 ft 6" thickness of plates 7/16" description of joint Corrugated if rings are fitted Yes  
Greatest length between rings — working pressure of furnace by the rules 125 combustion chamber plating, thickness, sides 10' 32" bottom 9' 16" top 15' 32"  
Pitch of stays to ditto, sides 4' 3" x 4' 3" top 4' 3" x 4' 3" 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) working pressure by rules 120 lbs Front plates at bottom, thickness 7/16" Back plates, thickness —  
Greatest pitch of stays — working pressure by rules — Diameter of tubes 3 1/2" pitch of tubes 4 3/4" thickness of tube plates, front 7/16" back 7/16" how stayed by tubes pitch of stays 13 1/2" x 9 1/2" width of water spaces 4"  
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 — end 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

90410-815175

Lloyd's Register Foundation




6374 JB.

DONKEY BOILER— Description *Round Horizontal*  
Made at *Glasgow* by whom made *Anderson & Hall* 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 *22* description of safety valves *Direct Spring* No. of safety valves *Two* area of each *4"* 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 *18" 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* description of joint *double strapped*  
Diameter of furnace, top *2' 6"* bottom *—* length of furnace *6'* thickness of plates *9/16" 9/16"* description of joint *double strapped*  
Thickness of furnace crown plates *10/32"* stayed by *Seven 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 braces, 1 stir pump & bucket & rod, 1 delivery valve seat & stud, 1 main bearing bolt, 1 pin connecting rod bolt, 1 bit coupling bolts, 2 feed & 2 valve bolts with seats for Prop. & blades (Crane), 1 funnel 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 noted in the Register Book*  *Lloyds M.C. 14/83*

*Noted in the Register Book  
is eligible to have the  
& Lloyds recorded M 1/1/84*

The amount of Entry Fee *£ 1/3 : 0 : 0* received by me, *(Signature)*  
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/-* — )

Committee's Minute

TUESDAY 1 JAN 1884

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



Lloyd's Register Foundation