

REPORT ON MACHINERY.

WED. 19 SEP 1894

Port of *Greenock*

Received at London Office

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Survey held at *Port Glasgow*
Book.Date, first Survey *May 7. 94.* Last Survey *Sep. 10. 1894*(Number of Visits *33.*)on the *S. S. "Lamington,"*Gross *1886*
Tons } Net *1208*When built *1881.**H. Rose* Built at *Port Glasgow* By whom built *Rt. Duncan & Co.*
Tripled *Port Glasgow.* By whom made *Tripled. Blackwood & Gordon* when made *1894*s made at *Do* By whom made *Do* when made *1894*ered Horse Power *200* Owners *Rosburn & Co.* Port belonging to *Glasgow*Horse Power as per Section 28 *163.*

NES, &c.— Description of Engines *Inverted Direct Acting Triple Expansion.* No. of Cylinders *Three.*
 Diameter of Cylinders *20. 32 & 53.* Length of Stroke *42"* Revolutions per minute *75* Diameter of Screw shaft *as per rule 10"*
 Diameter of Tunnel shaft *as per rule 9 1/2"* Diameter of Crank shaft journals *11 1/2"* Diameter of Crank pins *11 1/2"* Size of Crank webs *16 x 7 1/2" & 14 1/2 x 7 1/2"*
 Diameter of screw *14 1/2" 10"* Pitch of screw *14" 0"* No. of blades *Four* State whether moveable *yes.* Total surface *78 sq. ft.*
 Feed pumps *Two* Diameter of ditto *3"* Stroke *2 1/2"* Can one be overhauled while the other is at work *yes.*
 Bilge pumps *Two* Diameter of ditto *3 3/4"* Stroke *2 1/2"* Can one be overhauled while the other is at work *yes.*
 Donkey Engines *Two* Sizes of Pumps *7 1/4 x 9" & duplex 3 1/2 x 5"* No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room. *Three 2 1/2"* In Holds, &c. *Four 2 1/2"*

Bilge injections *one* sizes *3"* Connected to condenser, or to circulating pump *As a separate donkey suction fitted in Engine room & size yes. 3"*
 Are the bilge suction pipes fitted with roses *yes* Are the roses in Engine room always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes on stokehold bulkhead,*
 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.*
 How are they protected *How are they protected*
 Are pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *yes.*
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *yes.*
 Were stern tube, propeller, screw shaft, and all connections examined in dry dock *out slip* Is the screw shaft tunnel watertight *yes.*
 Fitted with a watertight door *yes* worked from *top platform.*

ERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *2180 sq. ft.*
 Description of Boilers *one Bann Horizontal Multitubular* Working Pressure *160 lbs.* Tested by hydraulic pressure to *320*
 Can each boiler be worked separately *—* Area of fire grate in each boiler *53.8 sq. ft.* No. and Description of safety valves to
 Area of each valve *8.3 sq. ft.* Pressure to which they are adjusted *160 lbs.* Are they fitted
 Smallest distance between boilers or uptakes and bunkers or woodwork *11 1/2"* Mean diameter of boilers *14.0"*
 Material of shell plates *Steel* Thickness *1 1/8"* Description of riveting: circum. seams *Lap double* long. seams *2 B traps trouble*
 Pitch of rivets *7 1/2" & 3 3/4"* Lap of plates or width of butt straps *16 3/4" straps,*
 Working pressure of shell by rules *161 lbs.* Size of manhole in shell *16 x 12.*
 No. and Description of Furnaces in each boiler *Three ribbed* Material *Steel* Outside diameter *42."*
 Description of longitudinal joint *welded.* No. of strengthening rings *—*
 Combustion chamber plates: Material *Steel* Thickness: Sides *9/16"* Back *9/16"* Top *9/16"* Bottom *3/4"*
 Working pressure of furnace by the rules *165 lbs.* If stays are fitted with nuts or riveted heads *nuts.* Working pressure by rules *173 & 186 lbs.*
 Diameter at smallest part *1 1/4" 1 3/8" 1 1/2"* Area supported by each stay *60 to 87 sq. in.* Working pressure by rules *162 to 181 lbs.* End plates in steam space:
 Working pressure by rules *163 lbs.* Material of stays *Steel,*
 Material of Lower back plate *Steel* Thickness *7/16"* Greatest pitch of stays *13 1/4" to 13 5/8"* Working pressure of plate by rules *160 to 168 lbs.*
 Material of tube plates *Steel* Thickness: Front *3/4" 9/16"* Back *3/4"* Mean pitch of stays *9 3/8"*
 Working pressures by rules *209 lbs.* Girders to Chamber tops: Material *Steel* Depth and
 Distance apart *7 1/2"* Number and pitch of Stays in each *Three 8"*
 Superheater or Steam chest; how connected to boiler *—* Can the superheater be shut off and the boiler worked
 Diameter *—* Length *—* Thickness of shell plates *—* Material *—* Description of longitudinal joint *—* Diam. of rivet
 Working pressure of shell by rules *—* Diameter of flue *—* Material of flue plates *—* Thickness *—*
 Working pressure by rules *—* End plates: Thickness *—* How stayed *—*
 Area of safety valves to superheater *—* Are they fitted with easing gear *—*

GRK 329-0014

DONKEY BOILER— Description *See Liverpool Surveyor's Report attached.*
 Made at *Birkenhead* By whom made _____ When made _____ Where fixed _____
 Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____
 No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____
 Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____
 Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____
 Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Thickness of shell crown plates _____ Radius of do. _____ No. of Stays to do. _____
 Dia. of stays _____ Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____ Thickness of furnace crown plates _____ Stayed by _____ Working pressure _____ by rules _____
 Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water _____

SPARE GEAR. State the articles supplied:— *2 top & 2 bottom end bolts & nuts, 2 main bearing bolts, 1 set coupling bolts, 1 set of feed & bilge pump valves, 1 length crank shaft (screw shaft old), 2 propeller blades, 1 set circulating pump valves.*

The foregoing is a correct description,

Blackburn & Co. Manufacturer.

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

Old Engines & Boilers removed from vessel. one third part bedplate new & fitted to forward end of old bedplate. Three new Cylinders & two new Columns fitted. New pumps fitted. two thirds crank shaft new. one third old. Surface Condenser tubes drained & cleaned. tubes replaced & packed. Piston Valve & Slide valves new. new Connecting rod for HP fitted. Crosshead studs in old rods made circular. New bushes in bed plates throughout & shafts bedded. fair. a new thrust block & new thrust shaft fitted. propeller removed & screw shaft drawn in board cleaned & painted between brass sleeves. Stern bush relined with lignum vitae. screw shaft replaced & propeller securely fastened on same. all sea connections overhauled. a new blow off valve fitted on vessel's side. a new discharge valve chest fitted on vessel's side for air pump. a new part added to engine seating. The Engines and new Main & Donkey Boilers with new Mountings complete are satisfactorily fitted in vessel. intermediate & old part crank shaft examined and found in good order. new thrust shaft examined when being turned & found apparently sound. Two new additional 2 1/2 bilge pump sections fitted in after hold. a number of new bilge suction pipes with roses now fitted in engine room & cargo holds. a new brace watertight door fitted on stock hold bulkhead. tunnel door tried. New main boiler specially designed during construction. The Engines have been tested under full steam & the machinery & Boilers are now in good order & safe working condition, and are in our opinion eligible to be noted in Register Book.

LMC 9.94 & Engines Tripled, & **NB 9.94**

This vessel's Main Boiler is fitted with forced draught (Howard's Patent)

Certificate (if required) to be sent to *Owners*.

The amount of Entry Fee.. £ : : When applied for.

Special £ *13 : 0 d* 13/9 1894

Donkey Boiler Fee £ : : When received.

Travelling Expenses (if any) £ : : 2/7 1894

is submitted that this vessel is eligible for RECORD + L.M.C. 9.94 Tripled & NB 9.94 in accordance with new Cyls. HP Engine & boiler were fitted and several portions of the old were removed - M.A. 20.9.94
R. M. Newnham
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 Greenock District.

Committee's Minute **FRIDAY 21 SEP 1894**

Assigned

+ LMC 9.94 Tpd. 94
+ NB 9.94 NB 94



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