

# REPORT ON MACHINERY.

TUES. SEP 17 1901

Port of Glasgow

No. in Survey held at Glasgow Date, first Survey 15 Jan'y Last Survey 30 Augt 1901  
Reg. Book. S/S Carlston (Number of Plates 27) Gross 658.9  
Net 232.43

Master J. McQuodale Built at Paisley By whom built J. Fullerton & Co. When built 1901

Engines made at Coatbridge By whom made W. V. Lidgerwood when made 1901

Boilers made at Glasgow By whom made Hindray Burnett & Co. when made 1901

Registered Horse Power 125.0 Owners Paton & Hendry Port belonging to Glasgow

Nom. Horse Power as per Section 28 125.0 Is Refrigerating Machinery fitted No. Is Electric Light fitted No.

**ENGINES, &c.**—Description of Engines Compound surface condensing No. of Cylinders 2 No. of Cranks 2  
 Dia. of Cylinders 21" + 47" Length of Stroke 33" Revs. per minute 86 Dia. of Screw shaft 9.91" as per rule 9.91" as fitted 10.25" gth. of stern bush 3-10 3/4"  
 Dia. of Tunnel shaft 9.01" as per rule 9.01" as fitted 9.4" Dia. of Crank shaft journals 9.46" as per rule 9.46" as fitted 9.5" Dia. of Crank pin 9 1/2" Size of Crank webs 6 1/2" Dia. of thrust shaft under collars 9 1/2" Dia. of screw 12.0" Pitch of screw 14.0" No. of blades 4 State whether moveable No. Total surface 51.3 sq  
 No. of Feed pumps two Diameter of ditto 3" Stroke 16 1/2" Can one be overhauled while the other is at work Yes.  
 No. of Bilge pumps two Diameter of ditto 3" Stroke 16 1/2" Can one be overhauled while the other is at work Yes.  
 No. of Donkey Engines two Sizes of Pumps Pulomometer No. 8 No. and size of Suctions connected to both Bilge and Donkey pumps In Holds, &c. two at 2 1/2" after end of hold.  
 In Engine Room two 2 1/2"

No. of bilge injections 1 sizes 4" Connected to condenser or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes. 2 1/2"  
 Are all 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  
 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 two bilge pipes How are they protected wood casings  
 Are all 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.  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock ✓ Is the screw shaft tunnel watertight No tunnel  
 Is it fitted with a watertight door None worked from ✓

**BOILERS, &c.**—(Letter for record S.) Total Heating Surface of Boilers 2118 sq. ft. Is forced draft fitted No.  
 No. and Description of Boilers 1 S.E. cylindrical multichambered Working Pressure 130 lb. Tested by hydraulic pressure to 260 lb.  
 Date of test 6/8/01 Can each boiler be worked separately ✓ Area of fire grate in each boiler 56 sq No. and Description of safety valves to each boiler Lockheim / double area of each valve 8.29 Pressure to which they are adjusted 132 lb. Are they fitted with easing gear Yes.  
 Smallest distance between boilers or uptakes and bunkers or woodwork 5-6" Mean dia. of boilers 15-0" Length 10-6" Material of shell plates steel  
 Thickness 1/16" Range of tensile strength 28-32 Are they welded or flanged No. Descrip. of riveting: cir. seams Lap J. R. long. seams D. B. straps  
 Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 6 5/8" 3 3/16" Lap of plates or width of butt straps 16 3/4"  
 Per centages of strength of longitudinal joint rivets 84.8 Working pressure of shell by rules 131 lb. Size of manhole in shell 16" x 12"  
 Size of compensating ring McNeilings No. and Description of Furnaces in each boiler 3 plain Material steel Outside diameter 42"  
 Length of plain part top 6.6" bottom 9.3" Thickness of plates crown 3 1/2" bottom 3 1/2" Description of longitudinal joint Welded. No. of strengthening rings partial at bottom  
 Working pressure of furnace by the rules 140 lb. combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 3/32"  
 Pitch of stays to ditto: Sides 9 1/4" x 8 1/2" Back 9 1/4" x 8 1/2" Top 9" x 9" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 131 lb.  
 Material of stays steel Diameter at smallest part 1 1/2" Area supported by each stay 83 sq Working pressure by rules 139 lb. End plates in steam space: Material steel Thickness 1 1/16" Pitch of stays 18" x 16 1/2" How are stays secured J. nuts Working pressure by rules 133 lb. Material of stays steel  
 Diameter at smallest part 2.34" Area supported by each stay 298 sq Working pressure by rules 145 lb. Material of Front plates at bottom steel  
 Thickness 1/16" Material of Lower back plate steel Thickness 5/8" Greatest pitch of stays 14 1/2" Working pressure of plate by rules 187 lb.  
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 3/4" Material of tube plates steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 11 1/8"  
 Pitch across wide water spaces 14 1/2" Working pressures by rules 181 143 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7 1/2" x 1 1/2" Length as per rule 31 1/16" Distance apart 9" Number and pitch of Stays in each 2-9"  
 Working pressure by rules 129 lb. Superheater or Steam chest; how connected to boiler ✓ Can the superheater be shut off and the boiler worked separately ✓ Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet holes ✓ Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓  
 If stiffened with rings ✓ Distance between rings ✓ Working pressure by rules ✓ End plates: Thickness ✓ How stayed ✓  
 Working pressure of end plates ✓ Area of safety valves to superheater ✓ Are they fitted with easing gear ✓

If not, state whether, and when, one will be sent. In a Report also sent on the Hull of the ship



W535-0061

**DONKEY BOILER**— No. *one* Description *latent vertical*  
 Made at *Annan* By whom made *Cochrane & Co.* When made *1901* Where fixed *Stokehold.*  
 Working pressure *100* tested by hydraulic pressure to *200* No. of Certificate *5828* Fire grate area *13 sq ft* Description of safety valves *Cochran 2 3/4*  
 No. of safety valves *1* Area of each *5.94* Pressure to which they are adjusted *100 lb.* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *5'-3"* Length *11'-9"* Material of shell plates *steel* Thickness *7/16"* Range of tensile strength *17-32* Descrip. of riveting long. seams *double* Dia. of rivet holes *25/32* Whether punched or drilled *drilled* Pitch of rivets *2 7/8"*  
 Lap of plating *4"* Per centage of strength of joint Rivets *70.9* Thickness of shell crown plates *13/32* Radius of do. *2'-7"* No. of Stays to do. *none*  
 Dia. of stays. *✓* Diameter of furnace Top *2'-0"* Bottom *✓* Length of furnace *✓* Thickness of furnace plates *13/32* Description of joint *rimmed* Thickness of furnace crown plates *13/32* Stayed by *✓* Working pressure of shell by rules *100 lbs.*  
 Working pressure of furnace by rules *101 lbs.* Diameter of uptake *2 1/2* Thickness of uptake plates *5/8 + 25/32* Thickness of water tubes *1/4"*

**SPARE GEAR.** State the articles supplied:— *2 connecting rod top end & 2 bottom end bolts and nuts, 1 main bearing bolts, 1 set crank bolts, 1 set feed & bilge pump valves, 1 interchangeable valve spindle (main), 1 set cranks, & 1 set air pump valves, springs for feed bilge relief valves & for safety valves, 12 cond. tubes & fittings.*

The foregoing is a correct description,  
*W. W. Lidgerwood* Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *1901: Jan. 15, Feb. 6, Apr. 11, 17, 30, May 10, 14, 17, 23, 29, Jun. 6, 11*  
 During erection on board vessel— *20, 21, 26, Jul. 3, 10, 18, 25, 30, Aug. 6, 8, 13, 24, 26, 29, 30*  
 Total No. of visits *27*  
 Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *No*

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

Material of screw shaft *Iron.* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *Yes.*  
 Is the after end of the liner made water tight in the propeller boss *Yes.* If the liner is in more than one length are the joints burned *✓*  
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *✓* If two liners are fitted, is the shaft lapped or protected between the liners *✓*

*The engines and boilers of this vessel have been built under Special Survey and the materials and workmanship are good. When completed they were steamed under full steam and worked satisfactorily.*

*The machinery is now in good and efficient condition and eligible in my opinion to have the notation L.M.C. 8.01 in the Register book.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 8.01

*Jos. M. Buchanan.*  
*J. W. Dimmock.*  
*H. Gardner Smith*  
 Engineer & Surveyor to Lloyd's Register of British & Foreign Shipping.  
 17.9.01  
 18.9.01

The amount of Entry Fee... £ 2 : :  
 Special ... £ 18 : 15 :  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, 16/9/01  
 When received, 28/9/01

Committee's Minute Glasgow, 16 SEP. 1901  
 Assigned + L.M.C. 8.01



Glasgow

Certificates (if required) to be sent to  
 (The Surveys are requested not to write on or below the space for Committee's Minute.)

MACHINERY CERTIFICATE WRITTEN 17/01