

# REPORT ON MACHINERY.

No. 12463.

Port of

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No. in Survey held at Glasgow Date, first Survey 14 June Last Survey 16 October 1893  
 Reg. Book. P.P. 80132 o.s. "Jurua" (Number of Visits 7)  
 Supp. on the Master Assenstein Built at Port Glasgow By whom built Murdoch & Murray Tons { Gross 417 Net 284  
 Engines made at Glenoch By whom made Kincaid & Co. when made 1893  
 Boilers made at Glasgow By whom made Lindsay, Barnet & Co. when made 1893  
 Registered Horse Power 80 Owners J.R. d. Oliveira Port belonging to Para  
 Nom. Horse Power as per Section 28 83

**ENGINES, &c.**— Description of Engines No. of Cylinders  
 Diameter of Cylinders Length of Stroke Revolutions per minute Diameter of Screw shaft as per rule as fitted  
 Diameter of Tunnel shaft as per rule as fitted Diameter of Crank shaft journals Diameter of Crank pin Size of Crank webs  
 Diameter of screw Pitch of screw No. of blades State whether moveable Total surface  
 No. of Feed pumps Diameter of ditto Stroke Can one be overhauled while the other is at work  
 No. of Bilge pumps Diameter of ditto Stroke Can one be overhauled while the other is at work  
 No. of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room In Holds, &c.  
 No. of bilge injections sizes Connected to condenser, or to circulating pump Is a separate donkey suction fitted in Engine room & size  
 Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible  
 Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the discharge pipes above or below the deep water line  
 Are they each fitted with a discharge valve always accessible on the plating of the vessel Are the blow off cocks fitted with a spigot and brass covering plate  
 What pipes are carried through the bunkers How are they protected  
 Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times  
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock Is the screw shaft tunnel watertight  
 Is it fitted with a watertight door worked from

**OILERS, &c.**— (Letter for record S) Total Heating Surface of Boilers 1578.5  
 No. and Description of Boilers One Multitubular Cylindrical Working Pressure 175 lbs Tested by hydraulic pressure to 350 lbs  
 Date of test 14/9/93 Can each boiler be worked separately ✓ Area of fire grate in each boiler 50 sq ft No. and Description of safety valves to each boiler Two Direct Spring Area of each valve 4.9 sq in Pressure to which they are adjusted 179 lbs Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 5 1/2 ft Mean diameter of boilers 13'-0"  
 Length 10'-6" Material of shell plates plate Thickness 1 1/8" Description of riveting: circum. seams Lap double pin long. seams Butt tubular pin  
 Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 17 1/4" x 27 3/8"  
 Per centages of strength of longitudinal joint rivets 86.83 Working pressure of shell by rules 176 lbs Size of manhole in shell 16 1/2" x 12 1/2"  
 Size of compensating ring 6" x 1 1/8" No. and Description of Furnaces in each boiler Two, Purvis Material plate Outside diameter 3'-5 1/2"  
 Length of plain part 7'-3" Thickness of plates crown 17/32 Description of longitudinal joint Welded No. of strengthening rings —  
 Working pressure of furnace by the rules 188 lbs Combustion chamber plates: Material plate Thickness: Sides 5/8" Back 19/32" Top 1/6" Bottom 5/8"  
 Pitch of stays to ditto: Sides 8 1/2" x 8 1/2" Back 8" x 8 1/4" Top 8 1/2" x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 187, 179, 186 lbs  
 Material of stays plate Diameter at smallest part 1 7/32" Area supported by each stay 72, 66, 80 Working pressure by rules 195, 209, 198 lbs End plates in steam space: Material plate Thickness 7/8" Pitch of stays 18 3/4" How are stays secured D. nuts Working pressure by rules 176 lbs Material of stays plate  
 Diameter at smallest part 6.9 Area supported by each stay 357 sq in Working pressure by rules 176 lbs Material of Front plates at bottom plate  
 Thickness 3/4" Material of Lower back plate plate Thickness 3/4" Greatest pitch of stays 14" Working pressure of plate by rules 199 lbs  
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 3/4" Material of tube plates plate Thickness: Front 7/8" Back 27/32" Mean pitch of stays 10.6"  
 Pitch across wide water spaces 14 1/4" x 13 1/4" Working pressures by rules 199 + 222 lbs Girders to Chamber tops: Material iron Depth and thickness of girder at centre 7 1/2" x 7 1/2" Length as per rule 2'-3" Distance apart 9 3/8" Number and pitch of Stays in each (2) 8 1/2"  
 Working pressure by rules 176 lbs 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 —

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**DONKEY BOILER**— Description *none fitted in this vessel.*

Made at \_\_\_\_\_ 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 of shell by rules \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:—

The foregoing is a correct description,

Manufacturer. *For Lindsay Burnet & Co.  
H. Cameron*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *A. steel Main boiler of the dimensions given on the other side has been constructed under special survey by Messrs Lindsay Burnet & Co. Moor Port Boilers Works Glasgow. The material & workmanship are of good description and an hydraulic test of 360 lbs pressure per square inch has been applied at which pressure it was found tight and satisfactory.*

*This boiler is intended for the steamer vessel being built by Messrs Murdoch & Murray of Port Glasgow & designated No 132 & is to be forwarded to Greenock to be fitted on board.*

*A tracing of the boiler is hereto appended.*

*This Report has been forwarded to Greenock for the information of the Surveyors.*

MACHINERY CERTIFICATE

WRITTEN

Certificate (if required) to be sent to *Liverpool office*

The amount of Entry Fee..	£ 1 : : :	When applied for,
Special .. .. .	£ 12 : 9 : :	18/10/93
Donkey Boiler Fee .. .. .	£ : : : :	When received,
Travelling Expenses (if any) £	✓ : : : :	18/10/93

*A. McLeod*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI 20 OCT 1893

Assigned

*L.M.C. 10.93*



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Foundation