

# REPORT ON MACHINERY.

18860

No. 10060

Port of Greenock

Received at London Office

THURS 2

1890

No. in Survey held at Port Glasgow

Date, first Survey 24<sup>th</sup> February 1890 Last Survey 27<sup>th</sup> September 1890

15 on the Twin S.S. "Satellite"

(Number of Visits 72)

Tons 1472.14

Master D. W. Ogg Built at Port Glasgow By whom built Blackwood & Gordon When built 1890

Engines made at Port Glasgow By whom made Blackwood & Gordon when made 1890

Boilers made at do By whom made do when made 1890

Registered Horse Power 200 Owners Companhia Estrada de Ferro Port belonging to Rio de Janeiro

## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting Triple Expansion  
 Diameter of Cylinders 24" 24" 40" Length of Stroke 27" No. of Rev. per minute 140 Point of Cut off, High Pressure 19 1/2 IP 19 1/2  
 Diameter of Screw shaft 7 1/2" Diam. of Tunnel shaft 7 1/2" Diam. of Crank shaft journals 8" Diam. of Crank pin 8" size of Crank webs 10 1/2" x 5 1/2"  
 Diameter of screws 9" 6" Pitch of screw 1 1/2" No. of blades 4 state whether moveable no total surface 3.5 square feet in each  
 Diameter of Feed pumps 2" each diameter of ditto 2 1/2" Stroke 14" Can one be overhauled while the other is at work yes  
 Diameter of Bilge pumps 2" each diameter of ditto 3 1/2" Stroke 14" Can one be overhauled while the other is at work yes

Where do they pump from Engine room Cargo holds after end of tunnels after peak tank, deep tank, and sea  
 of Donkey Engines Two Size of Pumps 3 1/2" x 5" & 7" x 9" stroke Where do they pump from Small tanks from sea, Hot well

Boiler Large size from sea Ballast tanks & Bilges

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

Are bilge injections yes and sizes 3" Are they connected to condenser, or to circulating pump Circulating pumps

Are the pumps worked By Lewis

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

Are the pipes carried through the bunkers none How are they protected —

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

Are the stern tube, propeller, screw shaft, and all connections examined in dry dock On ship before launching & 21<sup>st</sup> September in Dry Dock

Are the screw shaft tunnels watertight yes and fitted with a sluice door yes worked from Engine room platform

## BOILERS, &c.—

Number of Boilers one Description Round Horizontal Single Tubular Whether Steel or Iron Steel

Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test 19<sup>th</sup> August 1890

Is there any superheating apparatus or steam chest none fitted

Can each boiler be worked separately — Can the superheater be shut off and the boiler worked separately —

Heating surface 3230 square feet Description of safety valves Direct spring No. to each boiler Two

Area of each valve — Are they fitted with easing gear yes No. of safety valves to superheater —

Are they fitted with easing gear — Smallest distance between boilers and bunkers or woodwork 12" Diameter of boilers 14" 0"

Description of riveting of shell long. seams D.B. strap treble circum. seams Lap double treble Thickness of shell plates 1 1/2"

Whether punched or drilled drilled pitch of rivets 8 5/8" 4 7/8" & 8 1/2" 4 1/2" Lap of plating 18" straps

Working pressure of shell by rules 160 lbs size of manholes in shell 16" x 12"

Compensating rings 30" x 26" x 1 3/4" No. of Furnaces in each boiler Six (ribbed)

Diameter 41" length, top 6' 0" bottom through thickness of plates 1 1/2" description of joint welded if rings are fitted yes bottom

Working pressure of furnace by the rules 184 lbs combustion chamber plating, thickness, sides 9/16" back — top 9/16"

Stays to ditto, sides 7 1/4" x 7 3/4" back top 7 1/4" x 7 3/4" If stays are fitted with nuts or riveted heads nuts working pressure of plating by

rules 162 lbs Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 164 lbs end plates in steam space, thickness 1 1/2"

Stays to ditto 15" x 14 3/4" how stays are secured Double nuts working pressure by rules 169 lbs diameter of stays at

test part 2 1/2" working pressure by rules 160 lbs Front plates at bottom, thickness 3/4" Back plates, thickness —

Pitch of stays — working pressure by rules — Diameter of tubes 3 1/4" pitch of tubes 4 1/2" x 4 1/2" thickness of tube

How stayed Stay tubes pitch of stays 9" x 9" 13 1/2" width of water spaces 4 1/2" to 6 inches

GRA 315-0183



**DONKEY BOILER**— Description *See attached Report.*  
Made at \_\_\_\_\_ by whom made \_\_\_\_\_ when made \_\_\_\_\_ where fixed \_\_\_\_\_  
Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ fire grate area \_\_\_\_\_ description of safe \_\_\_\_\_  
valves \_\_\_\_\_ No. of safety valves \_\_\_\_\_ area of each \_\_\_\_\_ if fitted with easing gear \_\_\_\_\_ if steam from main boilers \_\_\_\_\_  
enter the donkey boiler \_\_\_\_\_ diameter of donkey boiler \_\_\_\_\_ length \_\_\_\_\_ description of riveting \_\_\_\_\_  
Thickness of shell plates \_\_\_\_\_ diameter of rivet holes \_\_\_\_\_ whether punched or drilled \_\_\_\_\_ pitch of rivets \_\_\_\_\_ lap of plating \_\_\_\_\_  
per centage of strength of joint \_\_\_\_\_ thickness of crown plates \_\_\_\_\_ stayed by \_\_\_\_\_  
Diameter of furnace, top \_\_\_\_\_ bottom \_\_\_\_\_ length of furnace \_\_\_\_\_ thickness of 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 plates \_\_\_\_\_ thickness of water tubes \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— *2 Connecting rod top end and 2 bottom end bolts & nuts. 2 Main bearing bolts. 6 Crimping bolts. 2 feed & 2 bilge pump valves & seats. 3 Rammer rings for H.P. piston. 3 do for I.P. piston, spring for I.P. piston. 2 propellers. 1 propeller. 1 air pump rod. 1 Circulating pump rod. 1 pair Crosshead brasses. 1 pair crank pin bolts.*  
The foregoing is a correct description,  
*Blair & Co. Glasgow* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*These Engines and Boilers have been specially surveyed during construction. The quality of workmanship good. Main steam pipes satisfactorily tested by hydraulic pressure to 320 lbs per sq. inch. Shafts examined when being turned and found apparently free from defects. The Machinery and Boilers are satisfactorily fitted on board and have been tested under full steam. They are now in good order and safe working condition. And are in my opinion eligible to be noted in the Register Book **L.M.C. 9 90.***

*Spare gear Continued*  
*1 set of link brasses. 1 Cylinder escape valve valve spring. 6 Cylinder Cover bolts. 6 junk ring pins. 1 I.P. valve spindle. 1 set check valves. 1 set metallic valves. 1 set air pump. 2 sets rubber valves for circulating pumps. 3/4 set white metal. 1 set Lignum vitae strips for stern tube bushes. 36 Condenser tubes. 12 plain & 6 stay tubes for Main Boiler. 4 plain & 2 stay tubes for Donkey Boiler. 1 safety valve spring for Main Boiler. 1 safety valve spring for Donkey Boiler. 4 tube stoppers. 1 1/2 set of fire bars for Main Boilers. A quantity of bolts nuts and iron assorted.*

*It is submitted that this vessel is eligible to have + L.M.C. 9-90 recorded.*  
*W.A.*  
*2-10-90*

**Machinery Certificate**  
Written.  
The amount of Entry Fee .. £ 2 : : : received by me,  
Special .. £ 28 : 10 : :  
Donkey Boiler Fee .. £ : : :  
Certificate (if required) .. £ gratis : 29/9/1890.  
(To be sent as per margin.)  
(Travelling Expenses, if any, £ .. ..)  
Committee's Minute  
*+ L.M.C. 9 90*

*C. A. b. Heron*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping  
**Greenock District**  
**Lloyd's Register**  
Foundation