

# REPORT ON MACHINERY.

9797

No. 9494 Port of Glasgow WED 30 APRIL 1890  
 No. in Survey held at Glasgow Date, first Survey 22<sup>nd</sup> Jan'y 1889 Last Survey 26<sup>th</sup> Apr. 1890  
 Reg. Book. S. S. "Brazilian" (Number of Visits 93)  
 on the S. S. "Brazilian" Tons { Gross 3804  
 Master A. G. Whyte Built at Glasgow By whom built D & W. Henderson & Coy When built 1890  
 Engines made at Glasgow By whom made D & W. Henderson & Coy when made 1890  
 Boilers made at Glasgow By whom made D & W. Henderson & Coy when made 1890  
 Registered Horse Power 350 Owners J & A. Allan Port belonging to Glasgow.

## ENGINES, &c.—

Description of Engines Triple Expansion No. of Cylinders Three  
 Diam. of Cylinders 24", 40" & 66" Length of Stroke 48" Rev. per minute 40. Point of Cut off, High Pressure Var. Low Pressure Var.  
 Diameter of Screw shaft 13 1/4" Diam. of Tunnel shaft 12 1/4" Diam. of Crank shaft journals 13 1/4" Diam. of Crank pin 13 1/4" size of Crank webs Built  
 Diameter of screw 16'-6" Pitch of screw 16'-0" No. of blades 4. state whether moveable yes total surface 82 sq ft  
 No. of Feed pumps 2. diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2. diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work yes  
 Where do they pump from All compartments.  
 No. of Donkey Engines Three Size of Pumps Feed 4 1/2" x 8" } Where do they pump from Holds, sea tanks  
2nd 4 1/2" x 9" } and bilges  
working 2 1/2" x 4" }  
 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 6" Are they connected to condenser, or to circulating pump yes  
 How are the pumps worked by levers off L.P. engine  
 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 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock on stocks before launching  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from upper platform

## BOILERS, &c.—

No. of Boilers Two Description Howdens draughtless Material Steel Letter (for record) S.  
 Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs. Date of test 27<sup>th</sup> December 1889  
 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 —  
 No. of square feet of fire grate surface in each boiler 50. Description of safety valves direct spring No. to each boiler two  
 Area of each valve 11.04" Are they fitted with easing gear yes No. of safety valves to superheater — area of each valve —  
 Are they fitted with easing gear — Smallest distance between boilers and bunkers or woodwork 15" Diameter of boilers 14'-0"  
 Length of boilers 11'-0" description of riveting of shell long. seams d. butt str. circum. seams d. riv. lap Thickness of shell plates 1 1/4"  
 Diameter of rivet holes 1 5/16" whether punched or drilled drilled pitch of rivets 8 1/2" + 4 1/4" Lap of plating 7 3/8", straps 2 1/2"  
 Percentage of strength of longitudinal joint 84.55 working pressure of shell by rules 160 lbs. size of manholes in shell 12" x 16"  
 Size of compensating rings 28" x 24" x 1 1/4" No. of Furnaces in each boiler three Description of Furnaces Purvis patent  
 Outside diameter 43 1/2" length 8'-0" thickness of plates 5/8" description of joint welded if rings are fitted —  
 Greatest length between rings — working pressure of furnace by the rules 185 lbs. combustion chamber plating, thickness, sides 1/2" x 9/16" back 1/2" top 17/32"  
 Pitch of stays to ditto, sides 6 7/8" back 6 7/8" top 6 7/8" x 7 1/4" stays are fitted with nuts or riveted heads nuts. working pressure of plating by rules 160 lbs.  
 Diameter of stays at smallest part 1 1/2" x 1 1/4" working pressure of ditto by rules 160 lbs. and plates in steam space, thickness 3/4"  
 Pitch of stays to ditto 14 1/2" x 14 1/2" how stays are secured d. nuts working pressure by rules 160 lbs. diameter of stays at smallest part 2 3/4" bearing working pressure by rules 160 lbs. Front plates at bottom, thickness 3/4" Back plates, thickness 13/16"  
 Greatest pitch of stays — working pressure by rules — Diameter of tubes 2 1/2" pitch of tubes 3 1/16" + 3 1/4" thickness of tube plates, front 3/4" back 1/16" how stayed stayed pitch of stays 7 1/2" + 11 7/8" width of water spaces 6 1/2" - 7"  
 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 —

Lloyd's Reg Foundation

GLS159-0320

9797 lb

**DONKEY BOILER**— Description *Horizontal return tube*  
 Made at *Glasgow* by whom made *D. W. Henderson & Coy* when made *1890* where fixed *upper deck*  
 Working pressure *50 lbs.* tested by hydraulic pressure to *100 lbs.* No. of Certificate *2626.* fire grate area *21 sq. ft.* description of valves *Direct Spring* No. of safety valves *2.* area of each *7."* if fitted with easing gear *1/2* if steam from main boiler enter the donkey boiler *no* diameter of donkey boiler *7'-6"* length *8'-0"* description of riveting *lap*  
 Thickness of shell plates *7/16* diameter of rivet holes *3/4"* whether punched or drilled *drill.* pitch of rivets *2 3/4"* lap of plate *4 1/2*  
 per centage of strength of joint *62.5* thickness of ~~cover~~ *end* plates *9/16* stayed by *Stays 1 1/2" dia"*  
 Ex: Diameter of furnace, top *27 3/4"* bottom *—* length of furnace *5'-7"* thickness of plates *3/8"* description of joint *welded*  
 Thickness of furnace crown plates *—* stayed by *—* working pressure of shell by rules *6*  
 Working pressure of furnace by rules *80 lbs.* diameter of uptake *—* thickness of plates *—* thickness of ~~water~~ tubes *3 1/2" dia*

**SPARE GEAR.** State the articles supplied:— *One Thrust Shaft. Propeller blades & studs. Air circulating pump rods. Main bearing & coupling bolts. Top and bottom end bolts & brasses. Feed and bilge pump valves. Feed pump plunger. Bolts, nuts & iron assorted*

The foregoing is a correct description,  
*David W. Henderson & Coy* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The above mentioned engines and boilers have been built under Special Survey and are now completed on board in a satisfactory manner. This machinery is now in our opinion eligible to the notation: I. L. M. C. H. 90*

*It is submitted that this vessel is eligible to have + I. L. M. C. H. 90 recorded*

*A. H. D.  
30.4.90*

The amount of Entry Fee .. £ *3* : : : received by me,  
 Special .. *34* : *10* : :  
 Donkey Boiler Fee .. £ : : :  
 Certificate (if required) .. £ : : : *29/4/1890*  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ : : :)

*James Morrison*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Ships

Committee's Minute **FRIDAY 2 MAY 1890**  
*+ I. L. M. C. H. 90*

*Clyde District*  
 Lloyd's Register Foundation