

# REPORT ON MACHINERY.

Port of Greenock

Received at London Office 18

No. in Survey held at Greenock & Port Glasgow Date, first Survey March 24 Last Survey 10<sup>th</sup> Nov. 1894  
Reg. Book. (Number of Visits 73)

on the Screw Steamer, "Marbella" Tons } Gross 932.58  
Net 384.11

Master Smith Built at Port Glasgow By whom built Wm Hamilton & Co. When built 1894

Engines made at Greenock By whom made Rankin & Blackmore when made 1894

Boilers made at do By whom made do when made 1894

Registered Horse Power 209 Owners W. S. Bailey Port belonging to Hull

Nom. Horse Power as per Section 28 209

**ENGINES, &c.**— Description of Engines Inverted Direct Acting, Triple Expansion No. of Cylinders Three  
 Diameter of Cylinders 20, 33 & 54 Length of Stroke 36 Revolutions per minute 97 Diameter of Screw shaft as per rule 9.84  
 Diameter of Tunnel shaft as fitted 9.5 Diameter of Crank shaft journals 10 Diameter of Crank pins 10 Size of Crank webs 13 1/2 x 7 1/4  
 Diameter of screw 12.6 Pitch of screw 14.0 No. of blades Four State whether moveable no Total surface 57 square feet  
 No. of Feed pumps Two Diameter of ditto 3 Stroke 22 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps Two Diameter of ditto 4 Stroke 22 Can one be overhauled while the other is at work yes  
 No. of Donkey Engines Two Sizes of Pumps 6 x 8 & 4 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Two 2 1/2, one in engine room & one in stokehold In Holds, &c. Two 2 1/2, Two 2 & one 2 1/4 in tunnel

No. of bilge injections one sizes 4 Connected to condenser, or to circulating pump no 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 none How are they protected —  
 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 on slip before launching Is the screw shaft tunnel watertight yes  
 Is it fitted with a watertight door yes worked from top platform

**BOILERS, &c.**— (Letter for record S) Total Heating Surface of Boilers 3645 square feet  
 No. and Description of Boilers Two Round Horizontal Multitubular Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs  
 Date of test 31.8.94 Can each boiler be worked separately yes Area of fire grate in each boiler 61.5 sq feet No. and Description of safety valves to  
 each boiler Two Direct Spring Area of each valve 5.93 sq in Pressure to which they are adjusted 183 lbs Are they fitted  
 with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 6.0 Mean diameter of boilers 14.0  
 Length 11.0 Material of shell plates steel Thickness 1 3/8 Description of riveting: circum. seams Lap double long. seams 9. B. straps treble  
 Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 9 x 4 1/2 Lap of plates or width of butt straps 19 1/2 straps  
 Per centages of strength of longitudinal joint rivets 88.9 Working pressure of shell by rules 201 lbs Size of manhole in shell 16 x 12  
 Size of compensating ring 31 x 27 x 1 3/8 No. and Description of Furnaces in each boiler Three ribbed Material steel Outside diameter 42  
 Length of plain part top 9 between rivets Thickness of plates crown 7/8 Description of longitudinal joint welded No. of strengthening rings —  
 Working pressure of furnace by the rules 193 lbs Combustion chamber plates: Material steel Thickness: Sides 9/16 Back 9/16 Top 5/8 Bottom 3/4  
 Pitch of stays to ditto: Sides 7 3/8 x 7 3/8 Back 7 3/8 x 7 3/8 Top 8 1/2 x 7 3/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 186 lbs  
 Material of stays steel Diameter at smallest part 1 1/4 & 1 3/8 Area supported by each stay 51.2 & 62.4 Working pressure by rules 150 & 189 lbs End plates in steam space:  
 Material steel Thickness 1 1/8 Pitch of stays 15 3/8 x 15 3/8 How are stays secured double nuts Working pressure by rules 240 lbs Material of stays steel  
 Diameter at smallest part 2 1/2 Area supported by each stay 232 sq in Working pressure by rules 181 lbs Material of Front plates at bottom steel  
 Thickness 5/8 Material of Lower back plate steel Thickness 1 5/16 Greatest pitch of stays 13 Working pressure of plate by rules 191 lbs  
 Diameter of tubes 3 1/2 Pitch of tubes 1 1/8 x 1 5/8 Material of tube plates steel Thickness: Front 3/4 & 1/2 Back 1 5/16 Mean pitch of stays 9 1/4  
 Pitch across wide water spaces 14 Working pressures by rules 182 lbs Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 9 1/2 x 3/4 double Length as per rule 33 3/4 Distance apart 8 1/2 Number and pitch of Stays in each Three 7 3/8  
 Working pressure by rules 204 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 —

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the ship? L.R.P.H. Form No. 8. - 1202. - Copyable Ink.



**DONKEY BOILER**— Description *See Middlesbrough Report attached.*  
 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:— *2 top & 2 bottom end bolts & nuts. 2 main bearing bolts. 1 set coupling bolts. 1 set feed & bilge pump valves. 1 set piston springs. 1 air pump bucket. head valve & rod. 1 circulating pump piston & rod. 1 set of valves for air pump. 1 connecting rod bottom end bush. 2 safety valve springs. Cylinder escape valve springs. 50 tubes for Condenser with packings. 12 tubes for main boiler. a quantity of bolts nuts & iron assorted.*  
 The foregoing is a correct description,  
*Ranham & Blakmore* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*These Engines and Boilers have been specially surveyed during construction. quality of workmanship good. plain shafts examined when being turned and found apparently sound. Main steam <sup>pipes</sup> tested by hydraulic pressure to 360 lbs per sq. tests satisfactory. The Engines 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 Register Book. **LMC. 11. 94.***

It is submitted that  
 this vessel is eligible for  
**THE RECORD + L.M.C. 11-94**  
*M.A.*  
*13-11-94*

*W. A. G. Greenock*

Certificate (if required) to be sent to *Greenock*  
 The amount of Entry Fee.. £ 2 : : : When applied for,  
 Special .. .. £ 30 : 9 : } 10. 11. 18. 94  
 Donkey Boiler Fee .. .. £ : : : When received,  
 Travelling Expenses (if any) £ : : : } 12. 11. 18. 94  
*F. K. Pease*  
*C. A. C. Heron*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 Greenock District.

Committee's Minute **FRIDAY 16 NOV 1894**  
 Assigned *+ LMC 11, 94*

