

# REPORT ON MACHINERY.

8546

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No. in Survey held at Greenock Date, first Survey 3<sup>rd</sup> Feb 1883 Last Survey 14<sup>th</sup> Nov 1883  
 Reg. Book. 85716 (Number of Visits 57) 2256-14  
 on the S.S. "Grouse of Arragon" Tons 1485.53  
 Master W. Ferguson Built at Greenock By whom built Scott & Poy When built 1883  
 Engines made at Greenock By whom made Scott & Poy when made 1883  
 Boilers made at " By whom made " when made 1883  
 Registered Horse Power 275 Owners Prattice Clapperton & Co. Port belonging to Glasgow

## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting  
 Diameter of Cylinders 24" & 49" Length of Stroke 54" No. of Rev. per minute 84 Point of Cut off, High Pressure 40" Low Pressure 27"  
 Diameter of Screw shaft 11 1/2" Diam. of Tunnel shaft 10 1/2" Diam. of Crank shaft journals 11 1/2" Diam. of Crank pin 11 1/2" size of Crank webs 13 1/4" x 7 3/4"  
 Diameter of screw 14.6" Pitch of screw 14.6" No. of blades Four state whether moveable yes total surface 56 sq feet  
 No. of Feed pumps Two diameter of ditto 2 1/2" Stroke 54" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps Two diameter of ditto 2 1/2" Stroke 54" Can one be overhauled while the other is at work yes  
 Where do they pump from Engine Room, Cargo Holds, Wafter end of tunnel  
 No. of Donkey Engines one Size of Pumps 4 1/2" x 10" Where do they pump from Sea, Hot well & Bilges  
A 4" pipe Siphometer fitted to draw from Ballast tanks & Engine room bilge  
 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 4" valve Are they connected to condenser, or to circulating pump Circulating pump  
 How are the pumps worked By Crosshead  
 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 Steam & Feed pipes How are they protected Iron Casement  
 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 ship before vessel was launched  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Engine room top platform

## BOILERS, &c.—

Number of Boilers Two Description Round Horizontal Multitubular Whether Steel or Iron Shells & ends iron inside & furnace front steel  
 Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs per sq. in. Date of test 10<sup>th</sup> October 1883  
 Description of superheating apparatus or steam chest None fitted  
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately yes  
 No. of square feet of fire grate surface in each boiler 57.75 Description of safety valves Direct spring No. to each boiler Two  
 Area of each valve 15 sq. in. 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 9" Diameter of boilers 14.0"  
 Length of boilers 10.3" description of riveting of shell long. seams Double butt strap circum. seams Double Thickness of shell plates 1 1/8"  
 Diameter of rivet holes 1 3/16" whether punched or drilled drilled pitch of rivets 4 3/4" Lap of plating 16 3/4" straps  
 Per centage of strength of longitudinal joint 75 working pressure of shell by rules 100 lbs size of manholes in shell 16" x 12"  
 Size of compensating rings 23 1/2" diam. x 1" thick No. of Furnaces in each boiler Three (Corrugated)  
 Outside diameter 44" length, top 6.6" bottom 9.5" thickness of plates 7/8" description of joint Welded if rings are fitted no  
 Greatest length between rings — working pressure of furnace by the rules 113 lbs combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"  
 Pitch of stays to ditto, sides 8 1/4" x 7 3/4" back 7 3/4" x 7 3/4" top 8 1/2" x 7 3/4" If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 108 lbs Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 111 lbs end plates in steam space, thickness 1 1/8"  
 Pitch of stays to ditto 18 5/8" x 15 1/2" & 16" how stays are secured Double nuts working pressure by rules 91 lbs diameter of stays at smallest part 2 5/8" working pressure by rules 112 lbs Front plates at bottom, thickness 7/8" steel Back plates, thickness 3/4"  
 Greatest pitch of stays 13 3/4" working pressure by rules 113 lbs Diameter of tubes 4" pitch of tubes 5 3/8" x 5 3/8" thickness of tube plates, front 1 3/8" steel back 3/4" steel how stayed Stay tubes pitch of stays 10 3/4" x 10 3/4" & 16" width of water spaces 6 to 8 inches  
 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 —



DONKEY BOILER— Description *Round Horizontal Multitubular*  
Made at *Greenock* by whom made *Scott & Co* when made *1883* where fixed *on top deck*  
Working pressure *60 lbs* tested by hydraulic pressure to *120 lbs* No. of Certificate *166* fire grate area *22.5 sq ft* description of safety  
valves *Direct spring* No. of safety valves *Two* area of each *7 sq in* if fitted with easing gear *yes* if steam from main boilers can  
enter the donkey boiler *No* diameter of donkey boiler *8.6 in* length *9.0 in* description of riveting *Lap double & single*  
Thickness of shell plates *5/8 in* diameter of rivet holes *7/16 in* whether punched or drilled *drilled* pitch of rivets *3 3/8 in* lap of plating *4 5/8 in*  
per centage of strength of joint *72* thickness of crown plates *5/16 in* stayed by *bottom 5.0 in*  
Diameter of furnace *top 30 3/4 in bottom 30 in* length of furnace *top 6.0 in bottom 5.0 in* thickness of plates *7/16 in* description of joint *Welded*  
Thickness of furnace crown plates *5/16 in* stayed by *bottom 5.0 in* working pressure of shell by rules *60 lbs*  
Working pressure of furnace by rules *23 lbs for top* diameter of uptake *4 in* thickness of plates *5/16 in* thickness of water tubes *5/16 in*

SPARE GEAR. State the articles supplied:— *1 half length crank shaft 1 propeller shaft 1 pair crank pin brasses*  
*1 set main bearing bushes 4 propeller blades 1 set of feed pump & donkey pump valves & seats 2 crank pin bolts nuts*  
*2 top and bottom bolts 2 main bearing bolts 8 coupling bolts 24 boiler tubes 50 condenser tubes 200 ferrules for same*  
*1 set of valves for air & circulating pumps (Thomson's patent) 1 shipper plate for valves 1 set of springs for escape valves*  
*1 set of safety valve springs 1/2 set of furnace bars for main & donkey boilers. A quantity of studs, bolts, nuts & iron*  
The foregoing is a correct description,  
*Scott & Co* Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The Engines & Boilers have been*  
*specially surveyed during construction workmanship of good quality & the Machinery &*  
*Boilers are now in good order & safe working condition & are in my opinion eligible to*  
*be noted in the Register Book* **L.M.C. 11.83.**

*This submission has been  
referred to the  
Committee & L.M.C.  
recorded 11/11/83*

The amount of Entry Fee .. £ **2** : : : received by me,  
Special .. £ **33** : **15** : : at  
Donkey Boiler Fee .. £ : : : *Greenock*  
Certificate (if required) .. £ *Gratis* *14/11/83*  
To be sent as per margin.  
(Travelling Expenses, if any, £ : : :)

Committee's Minute

TUESDAY 27 NOV 1883

*C Andrew L. Hutton*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

*Greenock District.*