

# REPORT ON MACHINERY.

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No. 9223  
 No. in Survey held at Port Glasgow Date, first Survey 17<sup>th</sup> May 1886 Last Survey 18<sup>th</sup> Novr 1886  
 (Number of Visits 48) 1018.63  
 Tons 553.60  
 on the S.S. "Australind"  
 Master Julloch Built at Port Glasgow By whom built Blackwood & Gordon When built 1886  
 Engines made at Port Glasgow By whom made Blackwood & Gordon when made 1886  
 Boilers made at " By whom made " when made 1886  
 Registered Horse Power 125 Owners C. Bethell & Co., J. Trinder, Anderson & Co. Port belonging to Fremantle

## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting Triple Expansion  
 Diameter of Cylinders 19.30 & 30 Length of Stroke 36 No. of Rev. per minute 66 Point of Cut off, High Pressure 20<sup>1</sup>/<sub>2</sub> Low Pressure 18<sup>3</sup>/<sub>8</sub>  
 Diameter of Screw shaft 9<sup>1</sup>/<sub>2</sub> Diam. of Tunnel shaft 9<sup>1</sup>/<sub>4</sub> Diam. of Crank shaft journals 9<sup>1</sup>/<sub>2</sub> Diam. of Crank pin 9<sup>1</sup>/<sub>2</sub> size of Crank webs 7x11  
 Diameter of screw 13<sup>1</sup>/<sub>4</sub> Pitch of screw 16.6 No. of blades Four state whether moveable no total surface 50 sq feet  
 No. of Feed pumps Two diameter of ditto 3<sup>1</sup>/<sub>2</sub> Stroke 18 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps Two diameter of ditto 3<sup>1</sup>/<sub>2</sub> Stroke 18 Can one be overhauled while the other is at work yes  
 Where do they pump from Engine room, Stokehold & Cargo Holds  
 No. of Donkey Engines Two Size of Pumps 3<sup>1</sup>/<sub>4</sub> double acting & 2<sup>3</sup>/<sub>8</sub> single Where do they pump from Sea, Hot well, Bilges & Ballast tanks  
 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 condenser  
 How are the pumps worked By levers  
 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 on wash  
 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  
 That pipes are carried through the bunkers Bilge pipes, Ballast tank & fresh water pipes How are they protected Wood casing  
 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 slip before vessel was launched  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Engine room, mid platform

## BOILERS, &c.—

Number of Boilers Two Description Round Horizontal Multitubular Whether Steel or Iron Steel  
 Working Pressure 150 lbs Tested by hydraulic pressure to 300 lbs per sq in Date of test 2<sup>nd</sup> October 1886  
 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 yes  
 Area of square feet of fire grate surface in each boiler 48 Description of safety valves Direct Spring No. to each boiler Two  
 Area of each valve 7.06 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 20" to deck, 8" to Diameter of boilers 12" 0"  
 Length of boilers 10' 0" description of riveting of shell long. seams Double butt strap circum. seams Double Thickness of shell plates 1<sup>1</sup>/<sub>16</sub>"  
 Diameter of rivet holes 1<sup>1</sup>/<sub>4</sub>" whether punched or drilled Drilled pitch of rivets 8<sup>1</sup>/<sub>2</sub>" & 4<sup>1</sup>/<sub>4</sub>" Lap of plating 22 straps  
 Percentage of strength of longitudinal joint 85.3 working pressure of shell by rules 163 lbs size of manholes in shell end 16x12  
 No. of compensating rings 6x1 No. of Furnaces in each boiler Three (Corrugated)  
 Inside diameter 36<sup>1</sup>/<sub>2</sub>" length, top 7' 3" bottom 9' 3" thickness of plates 1<sup>1</sup>/<sub>2</sub>" description of joint Welded if rings are fitted no  
 Greatest length between rings — working pressure of furnace by the rules 164 lbs combustion chamber plating, thickness, sides 2<sup>1</sup>/<sub>2</sub>" back 2<sup>1</sup>/<sub>2</sub>" top 2<sup>1</sup>/<sub>2</sub>"  
 Pitch of stays to ditto, sides 9x9 back 9x9 top radial If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 163 lbs  
 Diameter of stays at smallest part 1<sup>1</sup>/<sub>2</sub>" working pressure of ditto by rules 163 lbs end plates in steam space, thickness 1<sup>5</sup>/<sub>16</sub>"  
 Pitch of stays to ditto 14<sup>1</sup>/<sub>2</sub>" x 14<sup>1</sup>/<sub>2</sub>" how stays are secured Double nuts working pressure by rules 150 lbs diameter of stays at smallest part 2<sup>3</sup>/<sub>8</sub>" full  
 Working pressure by rules 162 lbs Front plates at bottom, thickness 1<sup>1</sup>/<sub>16</sub>" Back plates, thickness 3<sup>1</sup>/<sub>4</sub>"  
 Greatest pitch of stays 9<sup>1</sup>/<sub>2</sub>" working pressure by rules 191 lbs Diameter of tubes 3<sup>1</sup>/<sub>4</sub>" pitch of tubes 4<sup>1</sup>/<sub>2</sub>" x 4<sup>1</sup>/<sub>2</sub>" thickness of tube plates, front 3<sup>1</sup>/<sub>4</sub>" & 5<sup>1</sup>/<sub>8</sub>" doubling plate back 3<sup>1</sup>/<sub>4</sub>"  
 how stayed Stay tubes pitch of stays 9x9 width of water spaces 5" 6"  
 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 *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 can  
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:— 1 set of Coupling bolts. 2 top end & 2 bottom end bolts  
nuts. 2 main bearing bolts & nuts. 1 set of feed & bilge pump valves. 1 set of piston & pin  
8 valves for circulating pump. 1 set of valves for air pump. safety valve spring. 1 pair  
of connecting rod brasses. 1 air bucket & rod. 1 circulating pump bucket & rod.

The foregoing is a correct description,

*pro Blackwood & Gordon* Manufacturer.  
*A.B. Macleod*

General Remarks (State quality of workmanship, opinions as to class, &c. *The Engines & Boilers have*  
*been specially surveyed during construction. workmanship of good*  
*quality. Shafts examined when being turned, and found satisfactory.*  
*The Machinery and Boilers satisfactorily tested under steam, and are*  
*now in good order and safe working condition, and eligible in my*  
*opinion to be noted in the Register Book L.M.C. 11.86.*

*Spare Gear Continued*

*1 air pump head valve. 1 length of crank shaft. 1 propeller shaft*  
*1 propeller. 103 tubes for boilers. 50 tubes for surface Condenser and 100*  
*packing glands spare springs for escape valves. a set of fire bars, and*  
*a quantity of bolts, nuts, and iron assorted.*

The amount of Entry Fee .. £ 2 : 0 : 0 received by me,

Special .. £ 18 : 15 : 0

Donkey Boiler Fee .. £ : : :

Certificate (if required) .. £ gratis : 19/11/1886

To be sent as per margin.

(Travelling Expenses, if any, £ Nil)

Committee's Minute

TUESDAY NOV 23 1886

*J.L. Mc*

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

*Greenock District.*