

## REPORT ON MACHINERY.

No. 29131

Port of *Glasgow*

Received at London Office

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No. in Survey held at *Glasgow* Date, first Survey *22<sup>nd</sup> Sept/09* Last Survey *14 July 1910*  
 Reg. Book. *6 Sup<sup>r</sup> on the* *J. I. "Den of Hamis"* (Number of Visits *4*)  
 Master *Glasgow* Built at *Glasgow* By whom built *Napier & Miller* Tons { Gross *5191.35*  
 Engines made at *Glasgow* By whom made *David Rowan & Co* (2°523) when made *1910* Net *3317.92*  
 Boilers made at *do* By whom made *do* when made *1910*  
 Registered Horse Power *490* Owners *C. Barrie & Son* Port belonging to *Glasgow Dundee*  
 Nom. Horse Power as per Section 28 *490* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*  
 Dia. of Cylinders *27 44 73* Length of Stroke *48* Revs. per minute *70* Dia. of Screw shaft *as per rule 14.88* Material of *Steel*  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube *Yes* Is the after end of the liner made water tight  
 in the propeller boss *Yes* If the liner is in more than one length are the joints burned *—* If the liner does not fit tightly at the part  
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *Yes* If two  
 liners are fitted, is the shaft lapped or protected between the liners *—* Length of stern bush *5' 3"*  
 Dia. of Tunnel shaft *as per rule 13.3* Dia. of Crank shaft journals *as per rule 13.99* Dia. of Crank pin *14 1/2* Size of Crank webs *9 1/2* Dia. of thrust shaft under  
 collars *15* Dia. of screw *18.0* Pitch of Screw *18.6* No. of Blades *4* State whether moveable *Yes* Total surface *100*  
 No. of Feed pumps *2* Diameter of ditto *4* Stroke *26* Can one be overhauled while the other is at work *Yes* 7 x 9 1/2 x 24 Automatic  
 No. of Bilge pumps *2* Diameter of ditto *4 1/2* Stroke *26* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *3* Sizes of Pumps *9 x 13 x 10, 8 x 5 x 8, 5 1/2 x 3 1/2 x 5* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *4 - 3 1/2* In Holds, &c. *2 - 3 1/2 2 1/2 1, 2 1/2 3*  
 No. of Bilge Injections *1* sizes *6* Connected to condenser, or to circulating pump *—* Is a separate Donkey Suction fitted in Engine room & size *Yes 3 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 *—*  
 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*  
 Dates of examination of completion of fitting of Sea Connections *7* of Stern Tube *7* Screw shaft and Propeller *8/6/10*  
 Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *Top grating*

BOILERS, &c.—(Letter for record (3)) Manufacturers of Steel *David Colville Sons Ltd*  
 Total Heating Surface of Boilers *7020* Is Forced Draft fitted *Yes* No. and Description of Boilers *2 Single Ended*  
 Working Pressure *180 lb* Tested by hydraulic pressure to *360 lb* Date of test *3/6/10* No. of Certificate *10434*  
 Can each boiler be worked separately *Yes* Area of fire grate in each boiler *73.25* No. and Description of Safety Valves to  
 each boiler *Lockdown Double* Area of each valve *12.56* Pressure to which they are adjusted *185* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *10 1/2* Mean dia. of boilers *17.0* Length *12.6* Material of shell plates *Steel*  
 Thickness *19/16* Range of tensile strength *28.456-31.7* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *S. R. L.*  
 long. seams *S. B. S.* Diameter of rivet holes in long. seams *1 1/16* Pitch of rivets *10* Lap of plates or width of butt straps *23 3/4*  
 Per centages of strength of longitudinal joint *rivets 106 plate 83.125* Working pressure of shell by rules *204* Size of manhole in shell *16 x 12*  
 Size of compensating ring *Flanged* No. and Description of Furnaces in each boiler *4 Dighton* Material *Steel* Outside diameter *3.88*  
 Length of plain part *top 9 1/8 bottom 9 1/8* Thickness of plates *9 1/8* Description of longitudinal joint *weld* No. of strengthening rings *—*  
 Working pressure of furnace by the rules *200* Combustion chamber plates: Material *Steel* Thickness: Sides *19/32* Back *5/8* Top *19/32* Bottom *7/8*  
 Pitch of stays to ditto: Sides *7 1/4 x 7 3/8* Back *7 7/8* Top *7 1/4 x 7 3/8* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *215*  
 Material of stays *Steel* Diameter at smallest part *1.48* Area supported by each stay *62* Working pressure by rules *190* End plates in steam space:  
 Material *Steel* Thickness *1 1/2* Pitch of stays *21 3/4 x 23 1/2* How are stays secured *D. nuts* Working pressure by rules *197* Material of stays *Steel*  
 Diameter at smallest part *11.04* Area supported by each stay *500* Working pressure by rules *230* Material of Front plates at bottom *Steel*  
 Thickness *7/8* Material of Lower back plate *Steel* Thickness *3/4* Greatest pitch of stays *12 3/8* Working pressure of plate by rules *182*  
 Diameter of tubes *2 1/2* Pitch of tubes *37/8 x 3 1/16* Material of tube plates *Steel* Thickness: Front *29/32* Back *3/4* Mean pitch of stays *9.4*  
 Pitch across wide water spaces *12 1/2* Working pressures by rules *188* Girders to Chamber tops: Material *Steel* Depth and  
 thickness of girder at centre *9 1/4 x 7 1/8 x 2* Length as per rule *38 5/8* Distance apart *7 7/8* Number and pitch of stays in each *4 - 7 1/4*  
 Working pressure by rules *184* Superheater or Steam chest; how connected to boiler *none* 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 *—*



Multitubular

~~VERTICAL~~ DONKEY BOILER— Manufacturers of Steel

No. 1 Description Cylindrical Return Tube Rpt. 5a  
Made at Glasgow By whom made David Rowan & Co. When made 1910 Where fixed  
Working pressure 120 tested by hydraulic pressure to 240 lb. Date of test 3/6/10 No. of Certificate 10435 Fire grate area Description of Safety  
Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment  
If fitted with easing gear If steam from main boilers can enter the donkey boiler Dia. of donkey boiler Length  
Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams  
Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Rivets  
Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays Plates  
Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint  
Working pressure of furnace by rules Thickness of furnace crown plates Stayed by  
Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:— Two top end bolts & nuts, 2 bottom end bolts & nuts, 2 main bearing bolts, set of coupling bolts, set of feed & ledge pump valves, quantity of assorted bolts & nuts & iron of various sizes. Also:— propeller shaft complete, 2 propeller blades, air pump bucket & rod, air pump bucket & rod, set air pump valves, set top & bottom end braces, eccentric shaft.  
The foregoing is a correct description,

Manufacturer.

for David Rowan & Co.

Dates of Survey { During progress of work in shops - 1909. Sep 22 Oct 1. 18. 19. 27. Nov 16. 28. Dec 3. 7. 9. 20. 1910 Jan 11. 13. Feb 9.  
while building { During erection on board vessel - 14. 15. 21. 22. 23. 24. 25. 26. March 10. 18. 25. April 4. 11. 13. 14. 18. 21. 26. May 9. 10. 12. 14.  
Total No. of visits 47.

Is the approved plan of main boiler forwarded herewith Yes  
" " " donkey " " " Yes

Dates of Examination of principal parts—Cylinders 22/2/10 Slides 25/3/10 Covers 25/3/10 Pistons 26/2/10 Rods 26/2/10  
Connecting rods 26/2/10 Crank shaft 26/2/10 Thrust shaft 4/4/10 Tunnel shafts 4/4/10 Screw shaft 14/5/10 Propeller 14/5/10  
Stern tube 4/4/10 Steam pipes tested 27/5/10 Engine and boiler seatings 10/6/10 Engines holding down bolts 29/6/10  
Completion of pumping arrangements 7/7/10 Boilers fixed 29/6/10 Engines tried under steam 14-7-10  
Main boiler safety valves adjusted 8-7-10 Thickness of adjusting washers P<sup>5</sup> 3/8 7/16 185 lb 0 1/2 3/8 S<sup>4</sup>  
Material of Crank shaft { Identification Mark on Do. } Material of Thrust shaft { Identification Mark on Do. }  
Material of Tunnel shafts { Identification Marks on Do. } H.G.S. Material of Screw shafts { Identification Marks on Do. } H.G.S.  
Material of Steam Pipes Wrought Iron Test pressure 540 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The engines & boilers of this vessel have been constructed under Special Survey & are of good materials & workmanship. They have been securely fitted on board & satisfactorily tried under steam.

This vessel is in our opinion eligible to have notation **L.M.C.** 7.10 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD.

+ L.M.C. 7.10

88M

29/7/10

F.D.

APR 1911

The amount of Entry Fee. £ 3 : : : When applied for, 21/7/10  
Special £ 44.10 : : :  
Donkey Boiler Fee £ : : :  
Travelling Expenses (if any) £ : : : When received, 27-7-10

Committee's Minute GLASGOW 26 JUL 1910

Assigned + L.M.C. 7.10

F.D. Certe 27.7.10

Hardner-Smith & John H Heck.  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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