

# REPORT ON MACHINERY.

No. 29131

Port of Glasgow

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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 Glamis" (Number of Visits 4)  
 Master 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 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 77x92 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 9x13x10, 8x5x8, 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 0 1, 2 1 3  
 No. of Bilge Injections 1 sizes 6 Connected to condenser, or to circulating pump 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 (S)) 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 lbs Tested by hydraulic pressure to 360 lbs 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 D. 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 Dugilton Material Steel Outside diameter 3.82  
 Length of plain part top — bottom — Thickness of plates crown 9/16 bottom — 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. G.

Dates of Survey while building	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.
	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	H 7.

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

Dates of Examination of principal parts—Cylinders 22/3/10 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> 0 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 } H.G.S. } Material of Screw shafts } Identification Marks on Do. }  
 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. [Signature]

The amount of Entry Fee. £ 3	When applied for, 21/7/10
Special £ 44.10.0	When received, 27.7.10
Donkey Boiler Fee £	
Travelling Expenses (if any) £	

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

Committee's Minute GLASGOW 26 JUL 1910  
 Assigned + L.M.C. 7.10  
 F.D. Certificate 27.7.10



Glasgow.

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)