

REPORT ON MACHINERY.

No. 15717
WRIA. 16 FEB 1910

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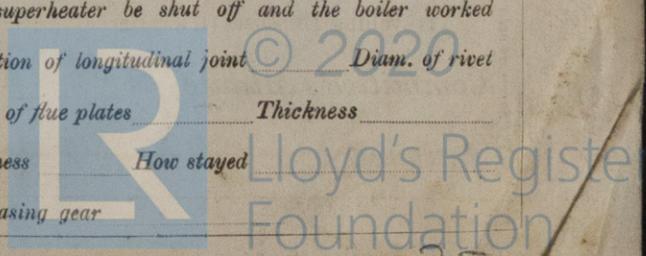
Date of writing Report 10/21 1910 When handed in at Local Office 10/21 1910 Port of Greenock.
No. in Survey held at Greenock. Date, First Survey 19th April 1909. Last Survey 7th Feby 1910.
Reg. Book. on the SCREW STEAMER "VALDURA." (Number of Visits 76.)

Master A. G. Mc Donnell. Built at Port Glasgow By whom built Russell & Co. When built 1910
Engines made at Greenock. By whom made Rankin & Blackmore. when made 1910
Boilers made at Greenock. By whom made Rankin & Blackmore. when made 1910.
Registered Horse Power Owners The Valdura S.S. Co. Ltd. Port belonging to Glasgow
Nom. Horse Power as per Section 28 538. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Triple Expansion. No. of Cylinders Three / No. of Cranks Three
Dia. of Cylinders 27-45-74 Length of Stroke 51 Revs. per minute 72 Dia. of Screw shaft as per rule 15.27 Material of screw shaft 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 Yes. 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 Yes. Length of stern bush 66
Dia. of Tunnel shaft as per rule 13.67 Dia. of Crank shaft journals as per rule 14.35 Dia. of Crank pin 14 1/2 Size of Crank webs 9 1/2 x 22 Dia. of thrust shaft under collars 14 1/2 Dia. of screw 19.6 Pitch of Screw 18.0 No. of Blades 4 State whether moveable No. Total surface 114 sq. ft.
No. of Feed pumps 2 Diameter of ditto 4 1/2 Stroke 25 Can one be overhauled while the other is at work Yes. Heav Main Feed Pump.
No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 25 Can one be overhauled while the other is at work Yes.
No. of Donkey Engines Three Sizes of Pumps FEED. DRY BUNKER. BALLAST. No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Three - 3 1/2 dia. In Holds, &c. No. 1 Hold: Two 3 1/2 dia. No. 2 Hold: Two 3 1/2 dia. No. 3
Hold (Deep Tank) Two 3 1/2 dia. No. 4 Hold: Two 3 1/2 dia. Tunnel Mill: 1 - 3 1/2 dia.
No. of Bilge Injections 1 sizes 8 1/2 Connected to condenser, or to circulating pump C.P. 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 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 Yes.
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 8/12/09 of Stern Tube 1/12/09 Screw shaft and Propeller 8/12/09
Is the Screw Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes. worked from Upper platform.

BOILERS, &c.—(Letter for record X) Manufacturers of Steel The Glasgow Iron Works Co. Ltd. Leith & Glasgow.
Total Heating Surface of Boilers 7890 sq. ft. Is Forced Draft fitted Yes. No. and Description of Boilers 3: Cylindrical. Single End.
Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 7/12/09. No. of Certificate 951.
Can each boiler be worked separately Yes. Area of fire grate in each boiler 544 sq. ft. No. and Description of Safety Valves to each boiler 2: Direct Spring loaded. Area of each valve 11.04 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes.
Smallest distance between boilers or uptakes and bunkers or woodwork About 24 Mean dia. of boilers 15.3 Length 11.9 Material of shell plates Steel
Thickness 1 1/16 Range of tensile strength 29600 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap Double
long. seams Butt Diameter of rivet holes in long. seams 1 1/4 Pitch of rivets 8 1/2 Lap of plates on width of butt straps 1.6 1/2
Per centages of strength of longitudinal joint rivets 86.5 Working pressure of shell by rules 180 lbs. Size of manhole in shell 16 x 12
plate 85.9 Size of compensating ring plate flanged No. and Description of Furnaces in each boiler 3: Dighton Material Steel Outside diameter 50 1/4
Length of plain part top 4.10 1/2 Thickness of plates bottom 19 Description of longitudinal joint Weld. No. of strengthening rings None
Working pressure of furnace by the rules 184 lbs Combustion chamber plates: Material Steel Thickness: Sides 5 Back 5 Top 3 1/2 Bottom 1 1/2
Pitch of stays to ditto: Sides 8 x 9 Back 8 1/2 x 8 1/2 Top 11 x 8 If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 188 lbs.
Material of stays Iron Diameter at smallest part 1 1/8 Area supported by each stay 88 Working pressure by rules 214 lbs. End plates in steam space: Spacially tested.
Material Steel Thickness 1 3/32 Pitch of stays 16 1/2 x 14 1/2 How are stays secured By nuts & washers. Working pressure by rules 192 lbs. Material of stays Steel.
Diameter at smallest part 3 Area supported by each stay 294 Working pressure by rules 256 lbs. Material of Front plates at bottom Steel.
Thickness 1 3/16 Material of Lower back plate Steel. Thickness 5/16 Greatest pitch of stays 12 1/2 Working pressure of plate by rules 208 lbs.
Diameter of tubes 2 1/2 Pitch of tubes 3 1/2 x 3 1/2 Material of tube plates Steel. Thickness: Front 1 1/16 Back 3/16 Mean pitch of stays 7.34
Pitch across wide water spaces 13 1/4 Working pressures by rules 214 lbs 273 lbs Girders to Chamber tops: Material Steel. Depth and thickness of girder at centre 11 x 15 Length as per rule 34 1/8 Distance apart 11 Number and pitch of stays in each 3: 8
Working pressure by rules 195 lbs. 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

1137-0035



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ 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 _____ Plates _____

Working pressure of shell by rules _____ 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 _____

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:— One Propeller and Shaft, 1 Eccentric Rod, 2 Main Bearing Bolts, 2 Ground Pin Bolts, 2 Crosshead Bolts, 1 Set Coupling Bolts, 1 Set Each Feed & Bilge pump valves & seats, 2 Main Feed Check valves, 2 Bilge Feed check valves, 2 D.P. Check valves, 1 Engol White metal, 12 Piston Bolts & Brass nuts, 1 Set Piston Springs for H.P. & L.P. Pistons, 1 Cylinder Escape valve & Spring, 4 Holding down Bolts, 6 Left Cover Bolts, 1 Feed Pump escape valve & Spring, 1 Set Safety valve springs, 12 main Boiler tubes, 6 Donkey Boiler tubes, 24 Condenser tubes, 1 set Bottom End Bushes, 1 set Air pump valves, 130 lbs nuts & bon of various sizes.

The foregoing is a correct description, **Randall Mackinnon** Manufacturer.

Dates of Survey while building	During progress of work in shops—	1909 Apr. 19. May. 4. 7. 10. 17. 18. 24. 26. 31. June 4. 7. 10. 14. 21. 25. 30. July 13. 24. 27. Aug. 2. 6. 9. 11. 17. 20. 25.
	During erection on board vessel—	31. Sept. 6. 7. 9. 15. 17. 21. 27. 30. Oct. 6. 11. 15. 18. 22. 26. 28. 29. Nov. 1. 2. 6. 8. 9. 10. 15. 18. 22. 25. 29. Dec. 1. 2. 6. 7. 8. 9. 11.
	Total No. of visits	76. Dec. 11. 14. 16. 17. 22. 23. 28. 1910 Jan. 6. 10. 14. 20. 26. 27. Feb. 3. 5.

Is the approved plan of main boiler forwarded herewith **Yes.**

Is the approved plan of donkey boiler forwarded herewith **Yes.**

Dates of Examination of principal parts—Cylinders 6/12/09. Slides 29/11/09. Covers 4/12/09. Pistons 6/12/09. Rods 22/10/09. Connecting rods 22/10/09. Crank shaft See Report. Thrust shaft 1/11/09. Tunnel shafts 25/11/09. Screw shaft 25/11/09. Propeller 25/11/09. Stern tube 1/11/09. Steam pipes tested See District Engine and boiler seatings 1/12/09. Engines holding down bolts 10/1/10. Completion of pumping arrangements 27/1/10. Boilers fixed 10/1/10. Engines tried under steam 7/2/10. Main boiler safety valves adjusted 26/1/10. Thickness of adjusting washers MAIN BOILERS: PORT. EX. 3" BY 3" CENTRE EX. 2" BY 2" STARD. EX. 3" BY 3" D.K. BOILER: 2 1/2" BY 3"

Material of Crank shaft Steel Identification Mark on Do. 510 Material of Thrust shaft Steel Identification Mark on Do. 919

Material of Tunnel shafts Steel Identification Marks on Do. 921, 922 Material of Screw shafts Steel Identification Marks on Do. 920

Material of Steam Pipes Wrot. Iron. By Stewart & Lloyd Test pressure Stamped CHIP 540 lb

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

The Engines and Boilers of this vessel have been built under Special Survey and the workmanship is good. On completion the machinery was examined while running full power trials and found to work satisfactorily. It is now in good and efficient condition and eligible in my opinion to have the record of **LMC 2, 10** marked in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD **LMC 2.10**

FD

J. M. Austin
Engineer-Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee	£ 3	When applied for,	10/2/1910
Special	£ 46 18	When received,	12/2/1910
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

Committee's Minute **GLASGOW** 15 FEB. 1910

Assigned **+ LMC 2, 10**

MACHINERY CERTIFICATE WRITTEN 16.2.10



Greenock

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