

REPORT ON MACHINERY.

No. 33677.

WED. MAR. 4-1914

Received at London Office

Date of writing Report 28-2-14 When handed in at Local Office 3-3-14 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey Last Survey 25-2-1914
 Reg. Book. 68 on the Steel Screw 3 Mast Steamer "Broadgreen" (Number of Visits)
 Master J. Brown Built at Paisley By whom built John Fullerton & Co Tons Gross 621.51 Net 263.89
 Engines made at Glasgow By whom made Ross & Duncan when made 1914
 Boilers made at Glasgow By whom made Ross & Duncan when made 1914
 Registered Horse Power 1076 Owners A. Rowland & Co Port belonging to Liverpool
 Nom. Horse Power as per Section 28 1076 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 14" x 24" x 40" Length of Stroke 27" Revs. per minute 98 Dia. of Screw shaft as per rule 8 1/4" Material of screw shaft Iron
 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 2'-9"
 Dia. of Tunnel shaft as per rule 9 5/8" Dia. of Crank shaft journals as per rule 7.625" Dia. of Crank pin 4 5/8" Size of Crank webs 5' x 14 3/8" Dia. of thrust shaft under
 collars 9 5/8" Dia. of screw 10'-0" Pitch of Screw 12'-6" No. of Blades 4 State whether moveable No Total surface 39 sq ft
 No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 13 1/2" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 2 3/4" Stroke 13 1/2" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps Duplex 5' x 3 1/2" x 5' No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 1-2", 1-2 1/4" and 1-2" special In Holds, &c. 2-2"

No. of Bilge Injections 1 sizes 3 1/4" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size yes 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 Hold Suctions How are they protected Wood Basings
 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 15-1-14 of Stern Tube 15-1-14 Screw shaft and Propeller 15-1-14

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door worked from
 BOILERS, &c.—(Letter for record S.) Manufacturers of Steel D. Colville & Sons & The Lancashire Steel Co

Total Heating Surface of Boilers 1899 sq ft Is Forced Draft fitted No. and Description of Boilers one single ended marine
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 21-1-14 No. of Certificate 12571.
 Can each boiler be worked separately Area of fire grate in each boiler 54.4 sq ft No. and Description of Safety Valves to
 each boiler 1 pair spring loaded Area of each valve 54.4 Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 3'-6" Inside dia. of boilers 14'-0" Length 10'-6" Material of shell plates steel
 Thickness 1 5/32" Range of tensile strength 28532 lbs Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R.
 long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8" Lap of plates or width of butt straps 14 1/2"
 Per centages of strength of longitudinal joint rivets 89.3 Working pressure of shell by rules 184 lbs Size of manhole in shell 16' x 12"
 Size of compensating ring 4' x 1 5/32" No. and Description of Furnaces in each boiler 3 plain Material steel Outside diameter 3'-5"
 Length of plain part top 3'-5" Thickness of plates crown 3 3/4" Description of longitudinal joint welded No. of strengthening rings 1
 Working pressure of furnace by the rules 180 Combustion chamber plates: Material steel Thickness: Sides 19/32" Back 19/32" Top 19/32" Bottom 1 1/16"
 Pitch of stays to ditto: Sides 8 1/4" x 4 3/4" Back 8 1/4" x 4 1/2" Top 8" x 8" If stays are fitted with nuts or riveted heads yes Working pressure by rules 190
 Material of stays steel Area at smallest part 1'48" Area supported by each stay 64 sq ft Working pressure by rules 185 End plates in steam space:
 Material steel Thickness 1 5/32" Pitch of stays 19 1/2" x 14 1/2" How are stays secured D.N. Washers Working pressure by rules 184 Material of stays steel
 Area at smallest part 6'23" Area supported by each stay 343 sq ft Working pressure by rules 184 Material of Front plates at bottom steel
 Thickness 1 5/16" Material of Lower back plate steel Thickness 3/4" Greatest pitch of stays 13 3/4" Working pressure of plate by rules 183
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 1/16" Material of tube plates steel Thickness: Front 1 5/16" Back 1 3/16" Mean pitch of stays 9 3/8" x 9 1/2"
 Pitch across wide water spaces 14" Working pressures by rules 231 Girders to Chamber tops: Material Iron Depth and
 thickness of girder at centre 4' x 2 1/4" Length as per rule 2'-6 3/32" Distance apart 8" Number and pitch of stays in each 3 @ 8"
 Working pressure by rules 186 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

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No.	Description		When made	Where fixed
Made at	By whom made	Date of test	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of adjustment	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	Rivets
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Per centage of strength of joint	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	Radius of do.	Stayed by	
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey	

SPARE GEAR. State the articles supplied:— 2 connecting rod top end bolts & nuts, 2 connecting rod bottom end bolts & nuts, 2 main bearing bolts, 1 set of coupling bolts & nuts, 1 set of Feed & Bilge pump valves, 16 condenser tubes & ferrules, a set of firebars, 6 Boiler tubes
A quantity of assorted bolts & nuts and several lengths of iron of various sizes

The foregoing is a correct description,

Ross & Duncan, Manufacturers.

Dates of Survey while building	During progress of work in shops --	1913. Feb 25. Mar 28. Apr 15. 16. May 14. 27. June 2. 5. 9. July 7. 15. Aug 5. 12. Sept 4. 9. 15. 18. 24. Oct 6. 13.
	During erection on board vessel --	Nov 4. 13. 19. Dec. 1. 8. 17. 27. 1914. Jan 7. 9. 18. 21. 15. Feb 5. 12. 16. 20. 25.
	Total No. of visits	39.

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders	19-11-13	Slides	1-12-13	Covers	1-12-13	Pistons	17-12-13	Rods	17-12-13
Connecting rods	24-9-13	Crank shaft	24-9-13	Thrust shaft	27-12-13	Tunnel shafts	—	Screw shaft	27-12-13
Stern tube	27-12-13	Steam pipes tested	16-2-14	Engine and boiler seatings	20-2-14	Engines holding down bolts	20-2-14		
Completion of pumping arrangements	20-2-14	Boilers fixed	20-2-14	Engines tried under steam	25-2-14				
Main boiler safety valves adjusted	20-2-14	Thickness of adjusting washers	4/16" Port. 1/2" Starboard						
Material of Crank shaft	Iron	Identification Mark on Do.	6404	Material of Thrust shaft	Iron	Identification Mark on Do.	6404		
Material of Tunnel shafts	—	Identification Marks on Do.	—	Material of Screw shafts	Iron	Identification Marks on Do.	6404		
Material of Steam Pipes	Copper	Test pressure	36.0 lbs						

General Remarks (State quality of workmanship, opinions as to class, &c.) The Machinery & Boiler has been built under special survey in accordance with the rules & approved plans, securely fitted on board & tested under steam with satisfactory results & is in my opinion suitable for classification with record + L.M.C. 2-14.

The Machinery is an exact duplicate of that fitted in the S. S. "HILLERTON" (see Glasgow Report 82 33551.)

It is submitted that this vessel is eligible for THE RECORD. + LMC 2.14.

The amount of Entry Fee	£ 2 : 0 : 0	When applied for.	3/3/14.
Special	£ 16 : 4 : 0		
Donkey Boiler Fee	£ : : :	When received.	17/3/14
Travelling Expenses (if any)	£ : : :		

Committee's Minute GLASGOW 3 MAR. 1914

Assigned + L.M.C. 2.14

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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These papers	Signal Letters	Official No.
No., Date, and	Whether British	Foreign Built
British	Number of Decks	Number of Masts
Rigged	Stern	Build
Galleries	Head	Framework
vessel	Number of Buoy	Number of water
and their		
Total to quarter the	to bottom of keel	
No. of sets of Engines.	Descr.	
One	Recip. triple direct	
No. of Shafts.	Part	
One	Descript. Number Iron or Loaded	
Under Tonnage	Space or space	
Turret or Tru	Forecastle	
Bridge space	Peep or Break	
Side Houses	Deck Houses	
Chart House	Spaces for ma	
Section 78	1894	
Excess of Hat	Gross	
Deductions, a	Reg	
NOTE 1.—The to	Deck	
NOTE 2.—The u		
Name		
No. of Owne	Name, Resid	
West	place of	
man		
Dated 2		

GLASGOW

Certificate (if required) to be sent to