

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 Steam Steamer "Broadgreen" (Number of Visits)
 Master J. Brown Built at Paisley By whom built John Fullerton & Co Tons Gross 621.57 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 14x24x40 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 4.625 Dia. of Crank pin 4 5/8 Size of Crank webs 5x14 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
 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 1/4 x 3 1/2 x 5 Ballast 6 x 5 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 3/4 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 Is Forced Draft fitted No 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 No. and Description of Safety Valves to
 each boiler 1 pair spring loaded Area of each valve 5.4 Pressure to which they are adjusted 785 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 1 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 16x12
 plate 85 Working pressure of shell by rules 184 lbs Size of manhole in shell 16x12
 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 36-5 Thickness of plates crown 3/4 Description of longitudinal joint welded No. of strengthening rings 1
 bottom 36-5 Working pressure of furnace by the rules 180 Combustion chamber plates: Material steel Thickness: Sides 19/32 Back 19/32 Top 19/32 Bottom 11/16
 Pitch of stays to ditto: Sides 8 1/4 x 4 3/4 Back 8 1/4 x 4 1/2 Top 8x8 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 Working pressure by rules 185 End plates in steam space:
 Material steel Thickness 1 5/32 Pitch of stays 19 1/2 x 1 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 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 13/16 Back 13/16 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 yes 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. *2* Description *Vertical Donkey Boiler*

Made at *Glasgow* By whom made *Wm. Ross & Co.* When made *1913* Where fixed *On board S.S. "Hullerton"*

Working pressure *150 lbs* tested by hydraulic pressure to *200 lbs* Date of test *Feb 25* No. of Certificate *2097* Fire grate area *1.5* Description of Safety Valves *Two*

No. of Safety Valves *2* Area of each *1.5* Pressure to which they are adjusted *150 lbs* Date of adjustment *Feb 25*

If fitted with casing gear *No* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *18"* Length *10'*

Material of shell plates *Iron* Thickness *1/2"* Range of tensile strength *30,000 lbs* Descrip. of riveting long. seams *None*

Dia. of rivet holes *1/4"* Whether punched or drilled *Drilled* Pitch of rivets *None* Dia. of stays *None*

Working pressure of shell by rules *150 lbs* Thickness of shell crown plates *1/2"* Radius of do. *None* No. of stays to do. *None* Dia. of stays *None*

Diameter of furnace Top *18"* Bottom *18"* Length of furnace *10'* Thickness of furnace plates *1/2"* Description of joint *None*

Working pressure of furnace by rules *150 lbs* Thickness of furnace crown plates *1/2"* Radius of do. *None* Stayed by *None*

Diameter of uptake *18"* Thickness of uptake plates *1/2"* Thickness of water tubes *1/2"* Dates of survey *Feb 25, Mar 25, Apr 15, May 15, June 25, July 15, Aug 15, Sept 15, Oct 15*

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 Manufacturer.

Dates of Survey while building	During progress of work in shops	1913 Feb 25 - Mar 25 - Apr 15 - May 15 - June 25 - July 15 - Aug 15 - Sept 15 - Oct 15
	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 *Yes*

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

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* Propeller *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 *360 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. "Hullerton" (see Glasgow Report 2097 3355-1.)

It is submitted that this vessel is eligible for **THE RECORD + L.M.C. 2.14.**

JWD 5/3/14
Geo. A. Ferguson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee	£ 2 : 0 : 0	When applied for.
Special	£ 16 : 4 : 0	3/3/14
Donkey Boiler Fee	£ :	When received.
Travelling Expenses (if any)	£ :	7/3/14

Committee's Minute **GLASGOW** 3 MAR. 1914
 Assigned + L.M.C. 2.14

Certificate (if required) to be sent to GLASGOW

These pages contain the following information:

Signal Letters *135*

Official Number *2097*

No., Date, and Where Built *2097, Glasgow, 1913*

Whether British or Foreign Built *British*

British Classification

Number of Decks *3*

Number of Masts *2*

Rigged *—*

Stern *—*

Build *—*

Galleries *—*

Head *—*

Framework *—*

vessel *—*

Number of Boilers *2*

Number of Water Tubes *6*

and their capacity *—*

Total to quarter the length of the vessel to bottom of keel *—*

No. of sets of Engines *1*

Descr. of Engines *Vertical Donkey*

No. of Shafts *1*

Part of Shaft *Propeller*

Description of Shaft *Iron or Steel*

Loaded *—*

Under Tonnage *—*

Space or spaces *—*

Turret or Truss *—*

Forecastle *—*

Bridge space *—*

Pool or Break *—*

Side Houses *—*

Deck Houses *—*

Chart House *—*

Spaces for masts *—*

Section 78 (1894) *—*

Excess of Height *—*

Gross Tonnage *—*

Deductions, and Net Tonnage *—*

Regd. Tonnage *—*

NOTE 1.—The tonnage is based on the net tonnage of the vessel.

NOTE 2.—The tonnage is based on the net tonnage of the vessel.

Name *—*

No. of Owners *—*

Name, Residence, and Place of Business *West*

Dated 2 *—*

