

REPORT ON MACHINERY.

No. 29453.

Date of writing Report 24-10 1910 When handed in at Local Office 29/10/1910 Port of Glasgow 2nd Nov. 1910
 No. in Survey held at Glasgow Date, First Survey 17th Feb/10. Last Survey 27th Feb 1910
 Reg. Book. on the Twin Screw S/S "Alhona" (Number of Visits 43.)
 Master T. D. Billing Built at Glasgow By whom built Alex Stephen & Sons Ltd (H39) Tons Gross 4066.48 Net 1683.90
 Engines made at Glasgow By whom made Alex Stephen & Sons Ltd (H39) When built 1910
 Boilers made at ditto By whom made ditto when made 1910
 Registered Horse Power Owners British India MCoA Port belonging to Glasgow
 Nom. Horse Power as per Section 28 1317 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c. Description of Engines Quadruple Expansion (2 Sets) No. of Cylinders 8 No. of Cranks 8
 Dia. of Cylinders 24 1/2, 35, 50, 40 Length of Stroke 48 Revs. per minute Dia. of Screw shaft as per rule 14.08 Material of screw shaft S
 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 If two
 liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 5.4
 Dia. of Tunnel shaft as per rule 13.16 Dia. of Crank shaft journals as per rule 13.81 Dia. of Crank pin 4 3/4 Size of Crank webs 9 1/4 Dia. of thrust shaft under
 collars 1 1/4 Dia. of screw 16.0 Pitch of Screw 19.0 No. of Blades 3 State whether moveable Yes Total surface 83
 No. of Feed pumps 2 Pair of pumps Diameter of ditto 2 1/2 Stroke 6 3/4 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 3 Diameter of ditto 4 1/2 Stroke 6 3/4 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps Ball 9x11 1/2 Gel. 15 1/2 x 11 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2-3 Stokehold 2-3 In Holds, &c. 2-3 in each hold Tunnel 3-3
 No. of Bilge Injections 2 sizes 8 Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size Yes 3 (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 below
 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 31.8-10 of Stern Tube 31.8-10 Screw shaft and Propeller 31.8-10
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper Engine Room Platform

BOILERS, &c. (Letter for record S) Manufacturers of Steel Stirling & Co of Scotland
 Single in ded. 10, 72, 87, 21, 384 Total
 Total Heating Surface of Boilers 10,666 Is Forced Draft fitted Yes No. and Description of Boilers 2 Double Ended.
 Working Pressure 215 Tested by hydraulic pressure to H30 Date of test 8-10-10 No. of Certificate 10532, 10543
 Can each boiler be worked separately Yes Area of fire grate in each boiler 35.64 No. and Description of Safety Valves to
 each boiler 3 direct Springs Area of each valve 11 Pressure to which they are adjusted 220 Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 11 Mean dia. of boilers 15.6 Length 21.0 Material of shell plates S
 Thickness 1 3/32 Range of tensile strength 28/32 Are the shell plates welded or flanged Descrip. of riveting: cir. seams TR
 long. seams TR & DBS Diameter of rivet holes in long. seams 1 23/32 Pitch of rivets 10 1/8 Lap of plates or width of butt straps 24 1/4
 Per centages of strength of longitudinal joint rivets 94.5 Working pressure of shell by rules 248 Size of manhole in shell 16x12
 plate 83.82
 Size of compensating ring McAlister No. and Description of Furnaces in each boiler 8 Corrugated Material S Outside diameter 3-6 3/8
 Length of plain part top 39 1/4 Description of longitudinal joint weld No. of strengthening rings
 bottom Thickness of plates crown bottom
 Working pressure of furnace by the rules 230 Combustion chamber plates: Material S Thickness: Sides 2 1/32 Back 2 3/32 Top 2 3/32 Bottom 6 1/64
 Pitch of stays to ditto: Sides 4 1/2 x 9 Back 4 1/2 x 9 + 10 1/2 x 7 1/2 If stays are fitted with nuts or riveted heads Sub Working pressure by rules 220
 Material of stays S Diameter at smallest part 1 1/2 Area supported by each stay 64.5 Working pressure by rules 238 End plates in steam space:
 Material S Thickness 1 1/32 Pitch of stays 9 1/2 x 10 3/4 How are stays secured DN Working pressure by rules 220 Material of stays S
 Diameter at smallest part 1 1/2 Area supported by each stay 299.25 Working pressure by rules 250 Material of Front plates at bottom S
 Thickness 1 1/8 Material of Lower back plate S Thickness 1 1/8 Greatest pitch of stays Working pressure of plate by rules
 Diameter of tubes 2 3/4 Pitch of tubes 4 x 37 1/8 Material of tube plates S Thickness: Front 1 1/8 DP Back 1 Mean pitch of stays 4 1/8
 Pitch across wide water spaces 13 1/2 Working pressures by rules 224 Girders to Chamber tops: Material S Depth and
 thickness of girder at centre 16 1/4 x 13 1/2 (2) Length as per rule 4-64 Distance apart 9 1/2 Number and pitch of stays in each 6 at 4 1/2
 Working pressure by rules 241 Superheater or Steam chest; how connected to boiler 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
 plates Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
 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		
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
Working pressure of furnace by rules	Thickness of furnace crown plates	Stayed by	Dates of survey
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	

SPARE GEAR. State the articles supplied:—

2 Connecting Rods top end bolts 2 ditto for bottom end 2 main bearing bolts 1 set of Coupling bolts 1 set of Feed & Balge Pump Gages 1 set of Piston Rings a quantity of assorted bolts & nuts. Iron of various sizes. One Propeller Shaft 2 Propeller Blades.

The foregoing is a correct description,

Alex. Stephen & Sons Ltd.
 Wm. W. D. Small Secy.

Manufacturer.

Dates of Survey while building	During progress of work in shops - -	1910 Feb 17. 23. Mar 3. 15. 22. 29. April 4. 11. 13. 20. 27. 27. May 5. 11. 16. 24. 31. June 6. 14. 21. 28. 29. July 6. 8. 13. 26. 29. Aug 8. 12. 15. 18. 23. 24. 31. Sep 7. 14. 20. 28. 30. Oct 6. 13. 20. 27. Nov 3.
	During erection on board vessel - -	
	Total No. of visits	H 3.

Is the approved plan of main boiler forwarded herewith No

Dates of Examination of principal parts—Cylinders	13-7-10	Slides	18-8-10	Covers	6-7-10	Pistons	14-6-10	Rods	18-8-10
Connecting rods	26-7-10	Crank shaft	12-8-10	Thrust shaft	12-8-10	Tunnel shafts	24-8-10	Screw shaft	24-8-10
Stern tube	8-8-10	Steam pipes tested	8-8-10	Engine and boiler seatings	31-8-10	Engines holding down bolts	20-10-10		
Completion of pumping arrangements	20-10-10	Boilers fixed	20-9-10	Engines tried under steam	1-11-10				
Main boiler safety valves adjusted	20-10-10	Thickness of adjusting washers	9/32. 5/16. 7/16. 3/8. 13/32. 7/16. 3/8. 7/16. 5/16. 3/8.						
Material of Crank shaft	§	Identification Mark on Do.	LLOYDS WGM 439	Material of Thrust shaft	§	Identification Mark on Do.	LLOYDS WGM 439		
Material of Tunnel shafts	§	Identification Marks on Do.	ditto	Material of Screw shafts	§	Identification Marks on Do.	ditto		
Material of Steam Pipes	Steel	Test pressure	645 lbs						

General Remarks (State quality of workmanship, opinions as to class, &c. These Engines & Boilers have been built under Special Survey in accordance with the approved plan & the workmanship & material are of good quality. These Engines & Boilers have been securely fitted on board & are eligible in my opinion for the record of **L M C 11-10**

It is submitted that this vessel is eligible for **THE RECORD + L M C 11.10.**
 2DB & 4SB. F.D.
 J.W.D. 2/11/10

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

The amount of Entry Fee	£ 3 - -	When applied for	27/10/1910
Special	£ 77 18.6	When received	29/10/1910
Donkey Boiler Fee	£ : :		
Travelling Expenses (if any)	£ : :		

Committee's Minute **GLASGOW**
 Assigned + L M C 11,10
 2/11/10



Write "Aiming or Shelter Deck" "Star Strake" opposite its corresponding letter.
 FL. (J) GA. See this way.
 DOUB.
 POOP.
 SHOR.
 FOREC.
 M.
 manuf.
 Plates.
 Ste.
 8.
 The.
 Has th.
 FRAM.
 REVE.
 LOWER.
 Bowspr.
 Topmast.
 Rigging.
 Sails.
 EQUIP.
 Number of Certificate.
 64554
 64555
 64556
 6454
 64553
 Number of Certificate.
 4576
 4611
 From Street Glass Steel Wire
 Boats.
 Pumps.
 Windlas.
 Engine.
 What arr.
 Coal Bu.
 Number of.
 Ceiling.
 Cargo H.
 State size.
 Number.
 Bulwar.
 The above.
 Builder's.

Rpt. 5a.
 Date of writt.
 No. in Reg. Book.
 Master G.
 Engines m.
 Boilers ma.
 Registered.
 MULTI.
 (Letter for Boilers.
 No. of Cen.
 safety valve.
 Are they fi.
 Smallest d.
 Material of.
 Descrip. of.
 Inp. of pl.
 rules 2.
 boiler H.
 Description.
 plates: M.
 Top 9 + 8.
 smallest p.
 Pitch of s.
 Area supp.
 Lower bac.
 Pitch of t.
 water spac.
 girder at.
 Working p.
 separately.
 holes.
 If stiffene.
 Working p.
 Dates of Survey while building.
 GENE.
 bu.
 pla.
 Flu.
 Surve.
 Trave.
 Commi.
 Assigne.