

REPORT ON MACHINERY.

Received at London Office

THU. DEC. 28 1911

Date of writing Report 20.12.1911 When handed in at Local Office 19 Port of SUNDERLAND.
 No. in Survey held at SUNDERLAND. Date, First Survey 11 Octbr. Last Survey 18th Decr 1911
 Reg. Book. on the Steel & Co. "Cheltonian" (Number of Visits 21)
 Master Jones Built at Sunderland By whom built Bartram & Sons Tons } Gross 4426
 Engines made at Sunderland By whom made John Dickinson & Sons Ltd. when made 1911 Net 2762
 Boilers made at do. By whom made do. when made 1911 When built 1911
 Registered Horse Power Owners Cambrian S.S. Co. Ltd. Port belonging to London
 Nom. Horse Power as per Section 28 401 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Tri-compound No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 26. 43. 71 Length of Stroke 48 Revs. per minute 70 Dia. of Screw shaft as per rule 14.5 Material of screw shaft W.I.
 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 5-0
 Dia. of Tunnel shaft as per rule 13.03 Dia. of Crank shaft journals as per rule 13.68 Dia. of Crank pin 13 3/4 Size of Crank webs 8 1/2 x 25 Dia. of thrust shaft under
 collars 13 3/4 Dia. of screw 17-6 Pitch of Screw 16-6 No. of Blades 4 State whether moveable No Total surface 8 1/2 sq ft
 No. of Feed pumps 2 Diameter of ditto 4 Stroke 25 1/2 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 25 1/2 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 3 Sizes of Pumps Ballast 9x10 2 Duplex 5x6 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 of 2 1/2 In Holds, &c. two 3 1/2 in each hold
 No. of Bilge Injections 1 size 4 Connected to condenser, or to circulating pump CP Is a separate Donkey Suction fitted in Engine room & size Yes 4
 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 27.11.11 of Stern Tube 27.11.11 Screw shaft and Propeller 27.11.11
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. Spencer & Sons Ltd
 Total Heating Surface of Boilers 6483 sq ft Is Forced Draft fitted No No. and Description of Boilers 3 single-ended
 Working Pressure 180 lb. Tested by hydraulic pressure to 360 lb. Date of test 1 Decr. 11 No. of Certificate 2971
 Can each boiler be worked separately Yes Area of fire grate in each boiler 60 sq ft No. and Description of Safety Valves to
 each boiler 2 spring Area of each valve 8.3 Pressure to which they are adjusted 185 lb. Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 7-0 Mean dia. of boilers 15 1/4 Length 11-3 Material of shell plates Steel
 Thickness 1 1/2 Range of tensile strength 28 1/2 / 32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams d.p. lap
 long. seams d. butt Diameter of rivet holes in long. seams 1 5/16 Pitch of rivets 8 15/16 Lap of plates or width of butt straps 1-7 1/4
 Per centages of strength of longitudinal joint rivets 92.44 Working pressure of shell by rules 188 lb. Size of manhole in shell 16 x 12
 plate 85.31
 Size of compensating ring 8 7/8 x 1 1/2 No. and Description of Furnaces in each boiler 3 Morrison Material S Outside diameter 3-10
 Length of plain part top 6 Thickness of plates crown 3 5/64 Description of longitudinal joint Weld No. of strengthening rings ✓
 bottom 6 bottom 3 5/64 Working pressure of furnace by the rules 185 Combustion chamber plates: Material S Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 7/8
 Pitch of stays to ditto: Sides 8 x 8 Back 8 x 8 Top 8 x 8 If stays are fitted with nuts or riveted heads Auto Working pressure by rules 211 lb
 Material of stays S Diameter at smallest part 1.35 Area supported by each stay 64 Working pressure by rules 181 End plates in steam space:
 Material S Thickness 1 1/2 Pitch of stays 17 x 20 1/2 How are stays secured d. nut Working pressure by rules 209 Material of stays S
 Diameter at smallest part 2-1/6 Area supported by each stay 348 Working pressure by rules 235 Material of Front plates at bottom S
 Thickness 1 5/16 Material of Lower back plate S Thickness 7/8 Greatest pitch of stays 13 1/2 x 8 Working pressure of plate by rules 215
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates S Thickness: Front 1 5/16 Back 7/8 Mean pitch of stays 9 x 9
 Pitch across wide water spaces 1-1 1/4 Working pressures by rules 180 Girders to Chamber tops: Material S Depth and
 thickness of girder at centre 7 3/8 x 2 Length as per rule 2-7 3/8 Distance apart 8 Number and pitch of stays in each 3 @ 8
 Working pressure by rules 198 lb 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
 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			
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area
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	Lap of plating	Per centage of strength of joint
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:— Propeller, propeller shaft, 4 main feed deck valves, 1 donkey feed check valve, 2 safety + 2 escape valve springs, 2 sets air, 3 sets circulating and 1 set of feed + bilge pump valves, 2 feed + 2 ballast donkey valves, set of coupling bolts/nuts, Assorted iron, bolts, nuts + washers, 2 connecting rod top/bottom end bolts + nuts + 2 main bearing bolts.

The foregoing is a correct description,
W. J. Findlay Manufacturer.

Dates of Survey while building	During progress of work in shops --	1911. Octbr. 11. 12. 13. 24. 30. 31. Novr. 7. 13. 15. 20. 22. 27
	During erection on board vessel ---	Decr. 1. 2. 4. 5. 7. 8. 12. 16. 18.
	Total No. of visits	(11)
		Is the approved plan of main boiler forwarded herewith <i>Yea</i> ✓
		" " " donkey " " " ✓
Dates of Examination of principal parts—Cylinders 12. 10. 11. Slides 11. 10. 11. Covers 13. 10. 11. Pistons 13. 10. 11. Rods 13. 10. 11.		
Connecting rods 13. 10. 11. Crank shaft 30. 10. 11. Thrust shaft 13. 11. 11. Tunnel shafts 13. 11. 11. Screw shaft 30. 10. 11. Propeller 30. 10. 11.		
Stern tube 27. 11. 11. Steam pipes tested 5. 12. 11. Engine and boiler seatings 2. 12. 11. Engines holding down bolts 2. 12. 11.		
Completion of pumping arrangements 20. 11. 11. Boilers fixed 4. 12. 11. Engines tried under steam 7. 12. 11.		
Main boiler safety valves adjusted 7. 12. 11. Thickness of adjusting washers Port $A \frac{13}{32}$ F $\frac{13}{32}$ Centre $\frac{3}{8}$ S $\frac{3}{8}$ Start $A \frac{1}{2}$ F $\frac{3}{8}$		
Material of Crank shaft <i>Steel</i> Identification Mark on Do. <i>J.T.F.</i> Material of Thrust shaft <i>Steel</i> Identification Mark on Do. <i>M.B. 745</i>		
Material of Tunnel shafts <i>Steel</i> Identification Marks on Do. <i>K.H.M.B.</i> Material of Screw shafts <i>W. Iron</i> Identification Marks on Do. <i>4545 J.T.F.</i>		
Material of Steam Pipes <i>Copper</i> ✓ Test pressure 400 lbs. ✓		

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The machinery and boilers of this vessel have been constructed under Special Survey and the materials and workmanship are good.
 The engines and boilers have been examined and tried under full steam and found satisfactory.
 In my opinion, the machinery of this vessel is eligible for the record of +LMC. 12. 11. in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + LMC 12. 11.

ARR

J.W.D.
29/12/11

The amount of Entry Fee	£ 3 : = :	When applied for,
Special	£ 40 : 1 :	21. 12. 1911
Donkey Boiler Fee	£ : :	When received,
Travelling Expenses (if any)	£ : :	22. 12. 1911

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

Committee's Minute FRI. DEC. 29. 1911
 Assigned +LMC 12. 11

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

MACHINERY CERTIFICATE WRITTEN

