

# REPORT ON MACHINERY.

Port of Glasgow

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No. in Survey held at Glasgow  
Reg. Book. on the

Date, first Survey 28 Feb Last Survey 30 Oct 1906

S.S. "BLOEMFONTEIN"

Master Dumbarton Built at Dumbarton By whom built A. McMillan & Son When built 1906

Engines made at Glasgow By whom made Dunsmuir & Jackson Ltd when made 1906

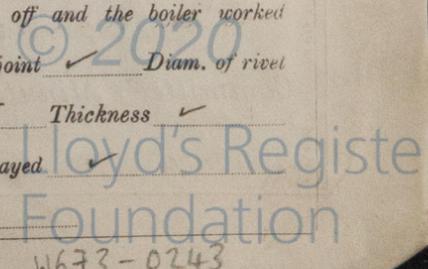
Boilers made at do By whom made do do do when made 1906

Registered Horse Power 478 Owners do Port belonging to do

Nom. Horse Power as per Section 28 478 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

**ENGINES, &c.**—Description of Engines Triple expansion, - screw No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 26", 44", 73" Length of Stroke 48" Revs. per minute 74 Dia. of Screw shaft as per rule 14.43 as fitted 15 1/8" 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 ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 5' 0 1/2"  
 Dia. of Tunnel shaft as per rule 13.12 as fitted 13 5/8" Dia. of Crank shaft journals as per rule 13.77 as fitted 14 1/4" Dia. of Crank pin 14 1/4" Size of Crank webs 9 1/4" tk Dia. of thrust shaft under collars 14 1/4" Dia. of screw 17.3" Pitch of Screw 17.3" No. of Blades 4 State whether moveable yes Total surface 92 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 26" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 26" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 5 Sizes of Pumps Weirs 8x10x71 - 8x5 1/2 x 8 - 6x4 1/2 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Four 3 1/2" dia. In Holds, &c. Two 3 1/2" dia. in each Nos 1, 2 & 3 holds. Tunnel & after hold wells 3 1/2" dia.  
 No. of Bilge Injections 1 sizes 5" Connected to condenser, or to circulating pump pump 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 none  
 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 9/8/06 of Stern Tube 9/8/06 Screw shaft and Propeller 9/8/06  
 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 Balderbank & D. Colville & Sons  
 Total Heating Surface of Boilers 6742 Is Forced Draft fitted yes No. and Description of Boilers 2 Single ended  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 9+16/10/06 No. of Certificate 8426 & 8284  
 Can each boiler be worked separately yes Area of fire grate in each boiler 64.6 No. and Description of Safety Valves to each boiler 2 Patent spring Area of each valve 9.62 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 12" Mean dia. of boilers 16.6" Length 12.0" Material of shell plates steel  
 Thickness 1 1/2" Range of tensile strength 28 to 32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double long. seams treble Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 20"  
 Percentages of strength of longitudinal joint rivets 86.5 plate 85.4 Working pressure of shell by rules 183 lbs Size of manhole in shell 16" x 12"  
 Size of compensating ring Mcneils No. and Description of Furnaces in each boiler 3 Deighton Material steel Outside diameter 4.3"  
 Length of plain part top } Thickness of plates crown } 19" bottom } 32" Description of longitudinal joint welded No. of strengthening rings ✓  
 Working pressure of furnace by the rules 185 Combustion chamber plates: Material steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 15/16"  
 Pitch of stays to ditto: Sides 8" x 9" Back 8" x 9 1/16" Top 8" x 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 185 lbs  
 Material of stays steel Area at smallest part 1.76 Area supported by each stay 40 1/2 Working pressure by rules 194 lbs End plates in steam space: Material 1 5/32" Thickness steel Pitch of stays 18" x 18" How are stays secured nuts Working pressure by rules nuts Material of stays steel  
 Area at smallest part 6.33 Area supported by each stay 324 Working pressure by rules 185 Material of Front plates at bottom steel  
 Thickness 7/8" Material of Lower back plate steel Thickness 13/16" Greatest pitch of stays 13 1/2" x 8" Working pressure of plate by rules 314  
 Diameter of tubes 2 1/2" Pitch of tubes 3 5/8" x 3 5/8" Material of tube plates steel Thickness: Front 3/32" Back 1/16" Mean pitch of stays abt 8 1/2"  
 Pitch across wide water spaces 13 1/2" Working pressures by rules 184 lbs Girders to Chamber tops: Material iron Depth and thickness of girder at centre 9 1/2" x 2-1" Length as per rule 34 3/4" Distance apart 9" Number and pitch of stays in each 3 - 8"  
 Working pressure by rules 194 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 ✓



VERTICAL DONKEY BOILER—

Manufacturers of Steel

See report attached.

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:— Two top end + two bottom end connecting rod bolts, two main bearing bolts, one set of coupling bolts, etc. + one set of feed sledge pump valves.

The foregoing is a correct description,  
For DUNSMUIR & JACKSON Limited,  
James Fletcher Manufacturer.

Dates of Survey while building	During progress of work in shops - -	1906. Feb 28. Mar 6. June 19. July 2. 12. 20. 28. Aug 1. 2. 8. 9. 16. Sep 13. 19. 20.
	During erection on board vessel - -	27. Oct 1. 12. 15. 22. 29. 30.
	Total No. of visits	22

Is the approved plan of main boiler forwarded herewith yes.  
" " " Auxiliary " " yes.  
" " " donkey " " yes.

Dates of Examination of principal parts—	Cylinders	Various	Slides	do	Covers	do	Pistons	do	Rods	do	
Connecting rods	do	Crank shaft	16/8/06	Thrust shaft	1/8/06	Tunnel shafts	28/7+3/8/06	Screw shaft	28/7/06	Propeller	28/7/06
Stern tube	28/7/06	Steam pipes tested	27/9/06 } 23/10/06 }	Engine and boiler seatings	23/10/06	Engines holding down bolts	29/10/06				
Completion of pumping arrangements			29/10/06	Boilers fixed	29/10/06	Engines tried under steam	29/10/06				
Main boiler safety valves adjusted	29/10/06	Thickness of adjusting washers	P.B. - 7/8", 5/16" - S.B. - 7/8", 5/16" - 3/8" + aft 3/8"								
Material of Crank shaft	iron	Identification Mark on Do.	J.W.D.	Material of Thrust shaft	steel	Identification Mark on Do.	J.W.D.				
Material of Tunnel shafts	steel	Identification Marks on Do.	J.W.D.	Material of Screw shafts	iron	Identification Marks on Do.	J.W.D.				
Material of Steam Pipes	Iron	Test pressure	540 lbs.								

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been constructed under Special Survey, the materials + workmanship are of good quality, it has been securely fitted on board, tried under steam, + found satisfactory. In my opinion it is eligible to be classed in the Register Book with the record of **HL.M.C.10.06.**

It is submitted that this vessel is eligible for THE RECORD **HL.M.C.10.06. F.D. ELEC. LIGHT.**

*J.W. Dimmock*  
14.11.06

The amount of Entry Fee..	£ 3	When applied for.	12 NOV 1906
Special ..	£ 43.18		
Donkey Boiler Fee ..	£ :	When received.	14/11/06
Travelling Expenses (if any) £	:		

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

Committee's Minute Glasgow 12 NOV 1906  
Assigned + L.M.C. 10.06

