

# REPORT ON MACHINERY.

Received at London Office

TUE. NOV. 17. 1914

Date of writing Report 19 When handed in at Local Office Nov 16 1914. Port of MIDDLESBRO'  
 No. in Survey held at Stockton-on-Tees Date, First Survey June 17 1914. Last Survey October 22 1914.  
 Reg. Book. on the Steel screw steamer BURFORD BURESK (S.S. No 642) (Number of Visits 4)  
 Master Built at Stockton By whom built Richardson & Co When built  
 Engines made at Stockton By whom made Messrs Blair & Co Lim. (No 1801) when made 1914  
 Boilers made at Stockton By whom made Messrs Blair & Co Lim. when made 1914  
 Registered Horse Power Owners Messrs Burdick & Cooh Port belonging to  
 Nom. Horse Power as per Section 28 321 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

**ENGINES, &c.**—Description of Engines Tri-compound No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 24-40-66 Length of Stroke 45 Revs. per minute 61 Dia. of Screw shaft as per rule 13.76 Material of screw shaft Iron  
 as fitted 15  
 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 in one 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 light fit If two  
 liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 5'-3"  
 Dia. of Tunnel shaft as per rule 12.13 Dia. of Crank shaft journals as per rule 12.73 Dia. of Crank pin 13 3/4 Size of Crank webs 26 1/2 x 9 Dia. of thrust shaft under  
 collars 13 3/4 Dia. of screw 17'-0" Pitch of Screw 16'-6" No. of Blades 4 State whether moveable no Total surface 89 sq ft  
 No. of Feed pumps 2 Diameter of ditto 3 Stroke 33 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 33 Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps Ballant-9x10; Red 4x8 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 3 @ 3 1/2 + dry tank one @ 3 1/2 In Holds, &c. 2 @ 3 1/2 in each hold except aftermost  
where one @ 3 1/2; Funnels well on @ 2 1/2  
 No. of Bilge Injections 1 sizes 6 1/2 Connected to condenser, or to circulating pump yes 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 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 suctions to fore holds How are they protected wood ceiling  
 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 7.9.14 of Stern Tube 27.8.14 Screw shaft and Propeller 1.10.14  
 Is the Screw Shaft Tunnel watertight see hull rpt Is it fitted with a watertight door yes worked from top platform

**BOILERS, &c.**—(Letter for record (3)) Manufacturers of Steel Messrs John Spencer & Co Lim.  
 Total Heating Surface of Boilers 4985 Is Forced Draft fitted no No. and Description of Boilers 2 single ended  
 Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 30.9.14 No. of Certificate 5393  
 Can each boiler be worked separately yes Area of fire grate in each boiler 63.4 sq ft No. and Description of Safety Valves to  
 each boiler 2 direct spring Area of each valve 8.29 Pressure to which they are adjusted 185 Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers on woodwork 2'-6" Mean dia. of boilers 16'-0" Length 11'-0" Material of shell plates steel  
 Thickness 1 3/8 Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 R. lap  
 long. seams 2 B-3 Riv Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 8 1/4 Lap of plates on width of butt straps 19 3/8 x 1 1/8  
 Per centages of strength of longitudinal joint rivets 82.7 Working pressure of shell by rules 183 Size of manhole in shell 16" x 12"  
 plate 85.02  
 Size of compensating ring 7 5/8 x 1 3/8 No. and Description of Furnaces in each boiler 3 Fox's Material steel Outside diameter 48  
 Length of plain part top 12 Thickness of plates crown 1 1/2 Description of longitudinal joint welded No. of strengthening rings 1  
 bottom 1 1/2 bottom 1 1/2  
 Working pressure of furnace by the rules 196 Combustion chamber plates: Material steel Thickness: Sides 2 3/32 Back 1/2 Top 3/32 Bottom 2 3/32  
 Pitch of stays to ditto: Sides 8 3/4 x 10 1/2 Back 9 3/4 x 8 3/4 Top 10 1/2 x 7 1/4 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182  
 Material of stays steel Diameter at smallest part 1.99 Area supported by each stay 97.12 Working pressure by rules 184 End plates in steam space:  
 Material steel Thickness 1 1/8 Pitch of stays 21 x 19 How are stays secured nuts & washers Working pressure by rules 183 Material of stays steel  
 Diameter at smallest part 7.84 Area supported by each stay 430 Working pressure by rules 189 Material of Front plates at bottom steel  
 Thickness 1" Material of Lower back plate steel Thickness 1 1/2 Greatest pitch of stays 15 1/2 x 8 3/4 Working pressure of plate by rules 236  
 Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 3/4 Material of tube plates steel Thickness: Front 1 1/2 Back 1 1/8 Mean pitch of stays 11 3/8  
 Pitch across wide water spaces 14 1/2 Working pressures by rules 182 Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 7 3/4 x 1 3/8 Length as per rule 30 Distance apart 10 1/2 Number and pitch of stays in each 2 @ 9 1/4  
 Working pressure by rules 185 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

If not, state whether, and when, one will be sent? yes

**VERTICAL DONKEY BOILER** — *Manufacturers of Steel* See Middlesbrough Report No 8636

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 each of con-rod top and bottom end bolts and nuts; one set of coupling bolts and nuts; one set of feed and bilge pump valves, assorted bolts and nuts; iron of various sizes; spare propeller 19. 1/2 in. diameter piston rings

The foregoing is a correct description,  
**For BLAIR & CO., LIMITED.**  
 G.W. Stettinshy Manufacturer.

**SECRETARY.** 9/14 Jun 17.18.22.26.29. Jul. 1.3.10.13.15.17.20.24.27.29.30 Aug. 4.6.7.11.14.24.26.27.28.31.  
 Dates of Survey while building } During progress of work in shops - - }  
 } During erection on board vessel - - } Sep 1.3.7.8.11.15.17.18.21.22.24.30 Oct 1.6.7.8.14.22.26.28. Nov 12.  
 Total No. of visits **48** Is the approved plan of main boiler forwarded herewith **yes**  
 " " " donkey " " " **yes**

Dates of Examination of principal parts—Cylinders **14.8.14** Slides **28.8.14** Covers **14.8.14** Pistons **14.8.14** Rods **14.8.14**  
 Connecting rods **10.7.14** Crank shaft **31.8.14** Thrust shaft **29.7.14** Tunnel shafts **26.6.14** Screw shaft **8.9.14** Propeller **8.9.14**  
 Stern tube **24.8.14** Steam pipes tested **7.10.14** Engine and boiler seatings **7.9.14** Engines holding down bolts **6.10.14**  
 Completion of pumping arrangements **14.10.14** Boilers fixed **14.10.14** Engines tried under steam **14.10.14**  
 Main boiler safety valves adjusted **14.10.14** Thickness of adjusting washers **P-Boiler 5-1/2 f; S-Boiler 5-7/8 f**  
 Material of Crank shaft **Iron steel** Identification Mark on Do. **6921** Material of Thrust shaft **Iron steel** Identification Mark on Do. **511-N**  
 Material of Tunnel shafts **Iron steel** Identification Marks on Do. **511-N** Material of Screw shafts **iron** Identification Marks on Do. **6921**  
 Material of Steam Pipes **Solid drawn copper (6 1/2 x 5/8 + 5 x 1/2)** Test pressure **400 lbs.**

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been built under special survey. The materials and workmanship are sound and good. The boilers and main steam pipes were tested by hydraulic pressure and the engines and boilers examined under steam and all found satisfactory. The machinery of this vessel is now in a good and safe-working condition and eligible in our opinion to have the notation of LMC 11-14 in the Register Book.*)

It is submitted that this vessel is eligible for **THE RECORD. + LMC 11.14.**

*J.W.D. 7/11/14*  
*A.R.R.*

The amount of Entry Fee... £ **3-0-0** When applied for, \_\_\_\_\_  
 Special ... £ **36-1-0** 16-11-1914  
 Donkey Boiler Fee ... £ \_\_\_\_\_  
 Travelling Expenses (if any) £ \_\_\_\_\_

*Wm Morrison & Thomas Miles*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. NOV 20 1914**  
 Assigned **+ LMC 11.14.**

MACHINERY CERTIFICATE WRITTEN.



Certificates (if required) to be sent to Middlesbrough.

The Surveyors are requested not to write on or below the space for Committee's Minute.