

## REPORT ON MACHINERY.

No. 8211

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Date of writing Report 24.11.1913 When handed in at Local Office 24.11.1913 Port of Middlesbrough  
No. in Survey held at Stockton-on-Tees Date, First Survey 8th April Last Survey 11th November 1913  
Reg. Book. on the Steel Screw Steamer "Penistone" (S.S.Nº 159) (Number of Visits 62)  
Master                      Built at Stockton By whom built Craig Taylor & Co Ltd Tons                      Gross                      Net                       
Engines made at Stockton By whom made Hussars Blair & Co Limº (Nº 1766) when made 1913  
Boilers made at Stockton By whom made Hussars Blair & Co Limº when made 1913  
Registered Horse Power                      Owners Charles Radcliffe & Co Port belonging to London  
Nom. Horse Power as per Section 28 371 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 26"-42½"-69½" Length of Stroke 45" Revs. per minute 58 Dia. of Screw shaft as per rule 14.13 Material of 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 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 tight fit If two  
liners are fitted, is the shaft lapped or protected between the liners                      Length of stern bush 6'-4"  
Dia. of Tunnel shaft as per rule 12.72 Dia. of Crank shaft journals as per rule 13.35 Dia. of Crank pin 14½" Size of Crank webs 27½" x 9½" Dia. of thrust shaft under  
collars 14½" Dia. of screw 17'-0" Pitch of Screw 17'-0" No. of Blades 4 State whether moveable no Total surface 90 sq ft  
No. of Feed pumps 2 Diameter of ditto 3½" Stroke 33" Can one be overhauled while the other is at work yes  
No. of Bilge pumps 2 Diameter of ditto 4¾" Stroke 33" Can one be overhauled while the other is at work yes  
No. of Donkey Engines 2 Sizes of Pumps Ballant 9x10, Bud 4x8 No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room 3 @ 3½" In Holds, &c. 2 @ 3½" in each hold  
Tunnel with one @ 2½"  
No. of Bilge Injections 1 sizes 7" 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 no  
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 forward 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 22.9.13 of Stern Tube 22.9.13 Screw shaft and Propeller 15.10.13  
Is the Screw Shaft Tunnel watertight on hull repair Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.—(Letter for record (S) ) Manufacturers of Steel Hussars John Spencer & Sons Ltd  
Total Heating Surface of Boilers 5983 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 28.7.13 No. of Certificate 5129  
Can each boiler be worked separately yes Area of fire grate in each boiler 61½ 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 180 Are they fitted with easing gear yes  
Smallest distance between boilers or uptakes and bunkers or woodwork 2'-2" Mean dia. of boilers 16'-9" Length 11'-6" Material of shell plates steel  
Thickness 1½" 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 1½" Pitch of rivets 9½" Lap of plates or width of butt straps 20½" x 1½"  
Per centages of strength of longitudinal joint 89.0 Working pressure of shell by rules 183 Size of manhole in shell 16" x 12"  
Size of compensating ring 7¾" x 1½" No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 48.4"  
Length of plain part top 37" Thickness of plates bottom 64" Description of longitudinal joint welded No. of strengthening rings                       
Working pressure of furnace by the rules 189 Combustion chamber plates: Material steel Thickness: Sides 1½" Back 1½" Top 1½" Bottom 32"  
Pitch of stays to ditto: Sides 9½" x 8¾" Back 9½" x 9½" Top 10½" x 8¾" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181  
Material of stays steel Diameter at smallest part 1.99 Area supported by each stay 90.23 Working pressure by rules 198 End plates in steam space:  
Material steel Thickness 1½" Pitch of stays 22½" How are stays secured nuts & washers Working pressure by rules 185 Material of stays steel  
Diameter at smallest part 8.48 Area supported by each stay 473 Working pressure by rules 186 Material of Front plates at bottom steel  
Thickness 1" Material of Lower back plate steel Thickness 1½" Greatest pitch of stays 14½" x 9½" Working pressure of plate by rules 200  
Diameter of tubes 3½" Pitch of tubes 4½" x 4½" Material of tube plates steel Thickness: Front 1½" Back 1½" Mean pitch of stays 9½"  
Pitch across wide water spaces 14½" Working pressures by rules 192 Girders to Chamber tops: Material steel Depth and  
thickness of girder at centre 8½" x 2" Length as per rule 33" Distance apart 10½" Number and pitch of stays in each 3 @ 8½"  
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                     

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Lloyd's Register  
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**VERTICAL DONKEY BOILER** — *See Middlesbrough Report No. 8102*

No. \_\_\_\_\_ Description \_\_\_\_\_ Port of \_\_\_\_\_  
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 \_\_\_\_\_ Rivets \_\_\_\_\_  
Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ 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 end and bottom end bolts and nuts; two main bearing bolts & nuts; one set of coupling bolts & nuts; one set of feed and life pump valves; one set each of H.P. & M.P. piston rings; assorted bolts & nuts; iron of various sizes and one tail end shaft.*

The foregoing is a correct description,  
**FOR BLAIR & CO., LIMITED.**

Manufacturer.

Dates of Survey while building \_\_\_\_\_  
During progress of work in shops — *SECRETARY* Apr. 9, 11, 15, 16, 18, 21, 22, 23, 25, 29, May 1, 3, 7, 10, 15, 19, 21, 23, 25, 27, 29, Jun. 2, 4, 6, 9, 10, 12, 13, 15, 18, 19.  
During erection on board vessel — *20, 23, 25, 27, 29, July 2, 3, 7, 9, 10, 11, 17, 22, 28, Aug. 12, Sep. 11, 12, 24, Oct. 1, 15, 16, 17, 30, 31, Nov. 4, 6, 11.*  
Total No. of visits *62.*  
Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts — Cylinders *2.6.13* Slides *2.6.13* Covers *2.6.13* Pistons *10.6.13* Rods *10.6.13*  
Connecting rods *10.6.13* Crank shaft *18.6.13* Thrust shaft *9.6.13* Tunnel shafts *3.7.13* Screw shaft *24.9.13* Propeller *22.9.13*  
Stern tube *11.9.13* Steam pipes tested *17.10.13* Engine and boiler seatings *1.10.13* Engines holding down bolts *20.10.13*  
Completion of pumping arrangements *6.11.13* Boilers fixed *6.11.13* Engines tried under steam *6.11.13*  
Main boiler safety valves adjusted *6.11.13* Thickness of adjusting washers *P.B.s 3/16" : S.B.s 1/2"*  
Material of Crank shaft *by steel* Identification Mark on Do. *6834* Material of Thrust shaft *by steel* Identification Mark on Do. *9337-N*  
Material of Tunnel shafts *by steel* Identification Marks on Do. *9337-N* Material of Screw shafts *iron* Identification Marks on Do. *6834*  
Material of Steam Pipes *solid drawn copper (7x5/16 & 5x1/4)* 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 my opinion to have the notation of LMC-11 in the Register Book.*

It is submitted that  
this vessel is eligible for  
**THE RECORD. + LMC 11.13.**

The amount of Entry Fee. . . £ *2.0-0* When applied for. . .  
Special . . . £ *38-11-0* When received. . .  
Donkey Boiler Fee . . . £  
Travelling Expenses (if any) £

Committee's Minute

Assigned

TUE. DEC. 2-1913

*Lmc 11.13*

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



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