

# REPORT ON MACHINERY.

No. 4376

THUR. 28 DEC 1905

Port of MIDDLESBROUGH-ON-TEES.

Received at London Office

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No. in Survey held at Stockton Date, first Survey 4<sup>th</sup> Oct 05 Last Survey 14<sup>th</sup> Dec 1905  
 Reg. Book. 46 on the Steel S.S. "Teesspool." (Number of Visits 30)  
 Master                      Built at Stockton By whom built Gopner & Son When built 1905  
 Engines made at Stockton By whom made Polair & Co Ltd when made 1905  
 Boilers made at Stockton By whom made Polair & Co Ltd when made 1905  
 Registered Horse Power                      Owners                      Port belonging to                       
 Nom. Horse Power as per Section 28 371 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Direct Acting Trip expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 26 - 42 - 70 Length of Stroke 48 Revs. per minute 56 Dia. of Screw shaft 14 1/4 Material of screw shaft W 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  
 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 Yes If two  
 liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 5 - 4  
 Dia. of Tunnel shaft 12 1/4 Dia. of Crank shaft journals 13 1/2 Dia. of Crank pin 14 1/4 Size of Crank webs 24 x 9 1/2 Dia. of thrust shaft under  
 flanges 14 1/4 Dia. of screw 17 - 6 Pitch of screw 17 1/2 ft No. of blades 4 State whether moveable No Total surface 92 ft  
 No. of Feed pumps 2 Diameter of ditto 3 1/2 Stroke 34 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 5 Stroke 34 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps Four 4 x 8 Ballast 9 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps  
 Engine Room Three 3 1/2 diam In Holds, &c. Two each hold 3 1/2 diam

No. of bilge injections 1 sizes 7 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  
 That 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock Two times Is the screw shaft tunnel watertight See ship's report  
 Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 5750 ft Is forced draft fitted No  
 No. and Description of Boilers Three Cyl Multitubular Working Pressure 180 lb Tested by hydraulic pressure to 260 lb  
 Date of test 5-11-05 Can each boiler be worked separately Yes Area of fire grate in each boiler 53 1/2 ft No. and Description of safety valves to  
 each boiler Two spring Area of each valve 8.29 sq 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 18 Dia. of boilers 14 - 3 Length 11 - 0 Material of shell plates Steel  
 Thickness 3/16 - 1/2 Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams 25 ft in long. seams 25 ft straps  
 Diameter of rivet holes in long. seams 1 5/16 Pitch of rivets One row 8 3/8 Two 4 7/16 Lap of plates or width of butt straps 1 - 7 1/8  
 Percentages of strength of longitudinal joint 93.1 Working pressure of shell by rules 184.3 lb Size of manhole in shell 17 x 13  
 Size of compensating ring 31 - 27 - 1 3/16 No. and Description of Furnaces in each boiler 3 Iron Material Steel Outside diameter 3 - 2 1/2  
 Length of plain part 7 - 0 Thickness of plates 1/2 1/32 Description of longitudinal joint Welded No. of strengthening rings —  
 Working pressure of furnace by the rules 188 lb Combustion chamber plates: Material Steel Thickness: Sides 7/8 1/32 Back 7/8 1/32 Top 7/8 1/32 Bottom 3/4  
 Pitch of stays to ditto: Sides 7 3/4 x 9 1/2 Back 8 3/8 x 9 1/4 Top 9 1/2 x 7 3/4 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 183 lb  
 Material of stays Steel Diameter at smallest part 1 9/16 Area supported by each stay 80.9 sq Working pressure by rules 213 lb End plates in steam space:  
 Material Steel Thickness 3/16 1/32 Pitch of stays 21 1/2 x 17 1/2 How are stays secured Nuts Working pressure by rules 183 lb Material of stays Steel  
 Diameter at smallest part 3 Area supported by each stay 376.2 sq Working pressure by rules 187 lb Material of Front plates at bottom Steel  
 Thickness 1/32 Material of Lower back plate Steel Thickness 1 1/16 Greatest pitch of stays 14 1/2 x 9 1/4 Working pressure of plate by rules 263 lb  
 Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 7/8 Material of tube plates Steel Thickness: Front 1 1/32 Back 1 1/16 Mean pitch of stays 11  
 Pitch across wide water spaces 14 Working pressures by rules 208 lb Girders to Chamber tops: Material Steel Depth and  
 Thickness of girder at centre 7 3/4 x 17 1/8 Length as per rule 29 Distance apart 9 1/2 Number and pitch of Stays in each Three 7 3/4  
 Working pressure by rules 190 lb 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  
 Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —  
 Stays — 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 —



## DONKEY BOILER—

No. Description  
 Made at By whom made When made Where fixed  
 Working pressure tested by hydraulic pressure to No. of Certificate Fire grate area Description of safety 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 Per centage of strength of joint Rivets Plates 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 Thickness of furnace crown plates Stayed by Working pressure of shell by rules  
 Working pressure of furnace by rules Diameter of uptake Thickness of uptake plates Thickness of water tubes

SPARE GEAR. State the articles supplied:— *Top and bottom end connecting rod bolts and nuts. Two main bearing bolts. Set of coupling bolts set of feed and bilge pump valves & 1/2 in piston rings for 1/2 piston pump. Bolts & nuts assorted &c.*

The foregoing is a correct description,

FOR BLAIR & CO., LIMITED.

*W. Borrie*

Manufacturer. of main engines & boilers

Dates of Survey while building  
 During progress of work in shops - -  
 During erection on board vessel - -  
 Total No. of visits

SECRETARY.

1905 Oct 4. 12. 13. 14. 18. 20. 23. 24. 25. 27. 28. 31. Nov. 2. 5. 7. 9. 13. 15. 15. 23. 29 Dec. 1. 5. 8. 12.

12. 12. 13. 14.

30

Is the approved plan of main boiler forwarded herewith *No Plans*

" " " donkey " " "

General Remarks (State quality of workmanship, opinions as to class, &c.)

*The engines and boiler of this vessel were constructed under Special Survey the materials & workmanship are good and efficient and when tested under steam were found satisfactory and in my opinion now eligible for the notification + L.M.C. 12.05 in the Register Book.*

It is submitted that this vessel is eligible for

THE RECORD + L.M.C. 12.05.

*R.S.*  
 28.12.05  
*R.M.S.*  
 28.12.05

The amount of Entry Fee £ 3 : 0 : 0 When applied for,  
 Special .. £ 3 8 : 11 : 0 27.12.1905  
 Donkey Boiler Fee .. £ : : :  
 Travelling Expenses (if any) £ : : : 27.12.1905

Committee's Minute

FRI. 29 DEC 1905

Assigned

+ L.M.C. 12.05

MACHINERY CERTIFICATE  
 WRITTEN.

*Geo A. Milner*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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