

# REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES Received at London Office THUR. 11 MAY 1899  
 No. in Survey held at Stockton Date, first Survey 18<sup>th</sup> October 1897 Last Survey 6<sup>th</sup> May 1899  
 Reg. Book. S.S. "Novington" (Number of Visits 44) Tons { Gross 2537.58  
 on the Novington Net 1616.68  
 Master J. Burnett Built at Thornaby By whom built Richardson, Duck Ho When built 1899  
 Engines made at Stockton By whom made Blair & Co. Limd when made 1899  
 Boilers made at Stockton By whom made Blair & Co. Limd when made 1899  
 Registered Horse Power 244 Owners Smithdown S.S. Co Ltd Port belonging to London  
 Nom. Horse Power as per Section 28 244 Is Electric Light fitted no

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Diameter of Cylinders 23", 34 1/2" & 61 1/2" Length of Stroke 39" Revolutions per minute 59 Diameter of Screw shaft as per rule 11.2  
 Diameter of Tunnel shaft as fitted 10.2 Diameter of Crank shaft journals 11 3/4" Diameter of Crank pin 12 1/4" Size of Crank webs 19 1/2" x 8 3/8"  
 Diameter of screw 16'-0" Pitch of screw 16'-0" No. of blades 4 State whether moveable sol. Total surface 70 1/2 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 28" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 28" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps Ball 7 1/2" x 9" & 4" x 8" No. and size of Suctions connected to both Bilge and Donkey pumps  
 in Engine Room Three: Centre 3 1/2" & wings 3" dia In Holds, &c. Fore, main & aft holds two each  
3" diameter. Tunnel well 2 1/2" diameter.  
 No. of bilge injections 1 sizes 5 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 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 on stocks Is the screw shaft tunnel watertight apparently  
 Is it fitted with a watertight door yes worked from upper platform.

BOILERS, &c.— (Letter for record (5) Total Heating Surface of Boilers 3778 sq. ft. Is forced draft fitted no  
 No. and Description of Boilers 2. S. & E. Multitubular Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs  
 Date of test 13.3.99 Can each boiler be worked separately yes Area of fire grate in each boiler 50 sq. ft. No. and Description of safety valves to  
 each boiler two dis. act. spring Area of each valve 7.06 sq. in. Pressure to which they are adjusted 165 lbs Are they fitted  
 with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 24" Outside Mean diameter of boilers 14'-9"  
 length 10'-0" Material of shell plates S. 27.32 Thickness 1 1/32" Description of riveting: circum. seams ind. d. r. lap long. seams d. butt str.  
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets ind. 8 3/8" Lap of plates & width of butt straps 6 1/2" & 19 1/4"  
 Per centages of strength of longitudinal joint rivets 89. Working pressure of shell by rules 177 lbs Size of manhole in shell 17" x 13"  
 Size of compensating ring 31 x 27 x 1 1/32" No. and Description of Furnaces in each boiler 3 Ribbed Material steel Outside diameter 41"  
 length of plain part 6'-3" Thickness of plates 1 1/2" Description of longitudinal joint welded No. of strengthening rings —  
 Working pressure of furnace by the rules 170 lbs Combustion chamber plates: Material steel Thickness: Sides 1 1/8" Back 1 1/8" Top 1 1/8" Bottom 1 1/8"  
 Pitch of stays to ditto: Sides 9 1/2" x 9 5/8" Back 9 1/2" x 9 1/2" Top 9 1/2" x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 174 lbs  
 Material of stays steel Diameter at smallest part 1 9/16" Area supported by each stay 93.8 sq. in. Working pressure by rules 183 lbs End plates in steam space:  
 Material steel Thickness 1 1/8" Pitch of stays 17 1/2" x 20" How are stays secured d. nuts Working pressure by rules 169 lbs Material of stays steel  
 Diameter at smallest part 2 3/4" Area supported by each stay 350 sq. in. Working pressure by rules 169 lbs Material of Front plates at bottom steel  
 Thickness 1" Material of Lower back plate steel Thickness 1 1/8" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 233 lbs  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 5/8" Material of tube plates S Thickness: Front 1" Back 1 1/8" Mean pitch of stays 9 1/8"  
 Pitch across wide water spaces 14" Working pressures by rules 195 lbs Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 7" x 1 1/2" Length as per rule 27 1/4" Distance apart 9 1/4" Number and pitch of Stays in each 2. 9 1/2"  
 Working pressure by rules 163 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 —



DONKEY BOILER— Description *Vertical Horace Patent*  
Made at *S. Shields* By whom made *M. Straker* When made *11.98* Where fixed *Stonehold*  
Working pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* No. of Certificate *5387* Fire grate area *35* Description of safety valves *d. Spring*  
No. of safety valves *2* Area of each *7.07* Pressure to which they are adjusted *90 lbs* If fitted with casing gear *yes* If steam from main boilers  
enter the donkey boiler *no* Diameter of donkey boiler *7' 6"* Length *14' 6"* Material of shell plates *steel* Thickness *1/2"*  
Description of riveting long. seams *d. h. lap* Diameter of rivet holes *1"* Whether punched or drilled *drill* Pitch of rivets *3"*  
Lap of plating *4 1/4"* Per centage of strength of joint Rivets *70* Thickness of shell crown plates *1/2"* Radius of do. *3' 8 1/2"* No. of Stays to do. *4*  
Dia. of stays *—* Diameter of furnace Top *—* Bottom *7' 4"* Length of furnace *—* Thickness of furnace plates *5/8"* Description  
joint *lap* Thickness of furnace crown plates *5/8"* Stayed by *sp. h.* Working pressure of shell by rules *91 lbs*  
Working pressure of furnace by rules *91 lbs* Diameter of uptake *22"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *Top and bottom end bolts nuts & washers G.C. Vaux*  
*Main bearing & coupling bolts and nuts. Feed, bilge*  
*and donkey pump valves. Propeller. — Bolts nuts etc.*

The foregoing is a correct description,

FOR BLAIR & CO., LIMITED.

*W. Borrie*

Manufacturers of Engines & Main boilers. —

Dates of Survey while building  
During progress of work in shops — *1899. Oct. 15. Nov. 24. Dec. 15. 21. 25. 30. Dec. 31. 1900. Jan. 2. 9. 12. 15. 16. 22. 23. 27. Mar. 6. 8. 13. 15. 16. 21. 22.*  
During erection on board vessel — *25. 27. 29. 30. Apr. 5. 6. 10. 13. 17. 18. 20. 21. 26. May 6.*  
Total No. of visits *Forty-four*

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

*These engines and boilers have been built and tested as required by the Society's Rules for Special Survey and are of good workmanship and materials, they have been well fitted and secured on board the vessel, and were, on completion, tried under steam with satisfactory results.*

*The machinery is now in a good and efficient working condition and in my opinion eligible to the notation of: **L.M.C. 5.99** in the Society's Register. —*

It is submitted that  
this vessel is eligible for  
THE RECORD. **L.M.C. 5.99.**

*A.C.H.*

*11.5.99.*

*12.5.99*

The amount of Entry Fee. £ *2* : — :  
Special .. .. £ *32* : *4* :  
Donkey Boiler Fee .. .. £ : :  
Travelling Expenses (if any) £ : :  
When applied for, *10th May 1899*  
When received, *10th May 1899*

Committee's Minute

Assigned

FRI 12 MAY 1899

MACHINERY CERTIFICATE  
WRITTEN.

*John Danderford*

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

*Middlesbrough, Tues. —*

*+ L.M.C. 5.99*



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Foundation