

## REPORT ON MACHINERY.

M.M. No. 4452  
S.M. No. 22700

Port of MIDDLESBROUGH-ON-TEES

Received at London Office 19

No. in Survey held at StocktonDate, first Survey 15<sup>th</sup> June 1905 Last Survey 21<sup>st</sup> March 1906

Reg. Book.

Supplement  
65 on theSteam S.S. "Trafalgar"(Number of Visits 27)Tons { Gross 2205.78  
Net 1401.99  
When built 1906Master Hans Thorsen Built at Arendal By whom built J. Crown & Son LtdEngines made at Stockton By whom made Blain & Co. Ltd when made 1906Boilers made at Stockton By whom made Blain & Co. Ltd when made 1906Registered Horse Power Owners W. H. Wilhelmsen Port belonging to TonsbergNom. Horse Power as per Section 28 233 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

ENGINES, &c.—Description of Engines Direct acting trip expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 22-36-59 Length of Stroke 39 Revs. per minute 58 Dia. of Screw shaft as per rule 12.4 Material of W. Iron  
as fitted 13 1/2 screw shaft  
 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 Yes If two  
 liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 4-8  
 Dia. of Tunnel shaft as per rule 12.8 Dia. of Crank shaft journals as per rule 11.3 Dia. of Crank pin 12 1/4 Size of Crank webs 19x7 1/4 Dia. of thrust shaft under  
as fitted 11 1/4 as fitted 11 3/4 collars 12 1/4 Dia. of screw 16-6 Pitch of screw 15 1/4 No. of blades 4 State whether moveable No Total surface 67 1/2  
 No. of Feed pumps 2 Diameter of ditto 2 3/4 Stroke 28 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4 Stroke 28 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps Ball 9x7 1/2 Foot 4x8 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Three 2 3/4, one 3 In Holds, &c. 2 of 2 3/4 to each

No. of bilge injections 1 sizes 6 Connected to condenser, or to circulating pump — 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 Below  
 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 new Is the screw shaft tunnel watertight Yes  
 Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—No. of Certificate 3589 (Letter for record S) Total Heating Surface of Boilers 3540 1/2 Is forced draft fitted No  
 No. and Description of Boilers Two Cylindrical Tubular Working Pressure 180 lb Tested by hydraulic pressure to 360 lb  
 Date of test 21.1.06 Can each boiler be worked separately Yes Area of fire grate in each boiler 51 1/2 No. and Description of safety valves to  
 each boiler Two spring Area of each valve 7.06 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 13-9 Length 18-6 Material of shell plates Steel  
 Thickness 3/16 Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams 28 1/2 in long. seams 2 Butt Strap  
 Diameter of rivet holes in long. seams 1 1/4 Pitch of rivets One row 8 3/8 Two 4 3/16 Lap of plates or width of butt straps 1-6 1/4  
 Per centages of strength of longitudinal joint 91.7% Working pressure of shell by rules 185 lb Size of manhole in shell 17x13  
 plate 85% Size of compensating ring 31x27x1 1/16 No. and Description of Furnaces in each boiler 3 Brown Material Steel Outside diameter 5-0 1/2  
 Length of plain part top 6-10 1/2 bottom 12 Thickness of plates crown 1 1/2 bottom 1 1/2 Description of longitudinal joint Welded No. of strengthening rings —  
 Working pressure of furnace by the rules 190 lb Combustion chamber plates: Material Steel Thickness: Sides 1 1/16 Back 1 1/16 Top 1 1/16 Bottom 3/4  
 Pitch of stays to ditto: Sides 9 3/4 x 9 Back 9 3/4 x 8 3/8 Top 9 3/8 x 9 1/2 If stays are fitted with nuts or riveted heads Both Working pressure by rules 183 lb  
 Material of stays Steel Diameter at smallest part 1 9/16 Area supported by each stay 89 Working pressure by rules 193 lb End plates in steam space:  
 Material Steel Thickness 1 3/16 1/32 Pitch of stays 2 1/2 x 1 7/8 How are stays secured Both Working pressure by rules 183 lb Material of stays Steel  
 Diameter at smallest part 3 Area supported by each stay 376.2 Working pressure by rules 187 lb Material of Front plates at bottom Steel  
 Thickness 1 1/32 Material of Lower back plate Steel Thickness 1 1/32 Greatest pitch of stays 17x8 7/8 Working pressure of plate by rules 199 lb  
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 5/8 Material of tube plates Steel Thickness: Front 1 1/32 Back 1 3/16 Mean pitch of stays 18 1/4  
 Pitch across wide water spaces 1 1/4 Working pressures by rules 201 lb Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 7 1/2 x 17 1/8 Length as per rule 28 Distance apart 9 3/8 Number and pitch of Stays in each Two 9 1/2  
 Working pressure by rules 186 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  
 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— No. Description  
Made at By whom made Date of test 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 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:— Propeller shaft, Propeller, H.P. & M.P. piston rings, L.P. piston springs, 2 main feed check valves, & seats, 2 donkey feed check valves, & seats, 1 set feed and bilge pump valves, 2 top end, 2 bottom end, 2 main bearings, & 1 set of coupling bolts, Bolts & nuts assorted, and Iron of sizes

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

W. Bonnie

Manufacturer of main engines & boilers

SECRETARY.  
Dates During progress of work in shops— 1905 June 15. Dec 6. 15. 20. 23. 24. 28. 1906 Jan 5. 9. 11. 22. 25. 30. Feb 1. 2. 3. 19. 20.  
of Survey During erection on board vessel— 21. 23. 28. Mar 1. 11. Jan 4. Feb 2. Mch 9. 12. 21.  
while building Total No. of visits 27  
(Sld) 06 Jan 4, Feb 2, Mch 9, 12, 21. (5)  
Is the approved plan of main boiler forwarded herewith M. Pelain  
" " " donkey " " "

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

The machinery and boilers of this vessel have been constructed under Special Survey, the materials and workmanship are good and efficient & when tested under steam were found satisfactory and in our opinion eligible for the notation **L.M.C. 3.06** in the Register Book.

It is submitted that  
this vessel is eligible for  
THE RECORD **L.M.C. 3.06**

Paul  
S.S. 6.4.06.  
6.4.06

The amount of Entry Fee.. £ 2 : 0 : 0  
Special .. £ 31 : 13 : 0  
Donkey Boiler Fee .. £ : :  
Travelling Expenses (if any) £ : :  
When applied for, 8.3.1906  
When received, 12/4/06

Committee's Minute

TUES. 10 APR 1906

Assigned

+ L.M.C. 3.06

MACHINERY CERTIFICATE  
WRITTEN.



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Foundation