

# REPORT ON MACHINERY.

Nuc. No. 50.206.  
Mps No. 4416

Port of MIDDLESBROUGH-ON-TEES.

Received at London Office

MUN. 12 MAR 1906

No. in Survey held at Stockton & Newcastle-on-Tyne Date, first Survey 1st Decr 05 Last Survey 1st Decr 1906

Reg. Book Supplement on the Steel S.S. "King Edward"

(Number of Visits 23)

Master C. Ritch Built at Newcastle By whom built H. Stephenson & Co. Ltd. Tons Gross 4357 Net 2892 When built 1906

Engines made at Stockton By whom made Tolain & Co. Ltd. when made 1906

Boilers made at Stockton By whom made Tolain & Co. Ltd. when made 1906

Registered Horse Power Owners Phillipps, Phillipps & Co. Ltd. Port belonging to London

Nom. Horse Power as per Section 28 358 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple expansion Direct acting No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 26-42 1/2-64 1/2 Length of Stroke 45 Revs. per minute 56 Dia. of Screw shaft as per rule 14 1/2 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 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 5-4

Dia. of Tunnel shaft as per rule 12 1/2 Dia. of Crank shaft journals as per rule 13 3/8 Dia. of Crank pin 14 1/2 Size of Crank webs 22 3/4 x 9 3/4 Dia. of thrust shaft under collars 14 1/2 Dia. of screw 17-0 Pitch of screw 17-0 No. of blades 4 State whether moceable No Total surface 86 1/2 sq

No. of Feed pumps 2 Diameter of ditto 3 1/4 Stroke 33 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 3/4 Stroke 33 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps Bellows 10x13 Feed 4x8 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 3 1/2 diam In Holds, &c. In all holds. two 3 1/2

No. of bilge injections 1 sizes 6 1/4 Connected to condenser, or to circulating pump LP 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

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 While building Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—No. of Certificate 3582 (Letter for record 5) Total Heating Surface of Boilers 5620 Is forced draft fitted No

No. and Description of Boilers Two Cyl. Tubular Working Pressure 180 lb Tested by hydraulic pressure to 360 lb

Date of test 9-1-06 Can each boiler be worked separately Yes Area of fire grate in each boiler 63 1/2 sq No. and Description of safety valves to each boiler Two Spring Area of each valve 9.29 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 16-6" Length 11-0" Material of shell plates Steel

Thickness 3/8" Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams 20 Riv long. seams 8 Butt Shape

Diameter of rivet holes in long. seams 1/8" Pitch of rivets One row 9 3/8 Two 4 1/16 Lap of plates or width of butt straps 1-8 1/4

Per centages of strength of longitudinal joint rivets 85.6 Working pressure of shell by rules 182 lb Size of manhole in shell 17 x 13

Size of compensating ring 31-27-13/8 No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 4-1"

Length of plain part top 6-9 3/8 bottom 6-9 3/8 Thickness of plates crown 9/16 bottom 1/32 Description of longitudinal joint Welded No. of strengthening rings -

Working pressure of furnace by the rules 192 lb Combustion chamber plates: Material Steel Thickness: Sides 5/8 1/32 Back 5/8 1/32 Top 5/8 1/32 Bottom 13/16

Pitch of stays to ditto: Sides 7 3/4 x 9 1/4 Back 8 7/8 x 9 3/8 Top 9 3/4 x 7 3/4 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 188 lb

Material of stays Steel Diameter at smallest part 1 9/16 Area supported by each stay 70.7 sq Working pressure by rules 219 lb End plates in steam space:

Material Steel Thickness 1 5/16 Pitch of stays 20 3/4 x 21 1/2 How are stays secured 72 x 10 Working pressure by rules 182 lb Material of stays Steel

Diameter at smallest part 3 1/4 Area supported by each stay 446 sq Working pressure by rules 186 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 17 3/4 x 9 1/8 Working pressure of plate by rules 184 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 13/16 Mean pitch of stays 11"

Pitch across wide water spaces 14 1/2 Working pressures by rules 194 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 3/4 x 2" Length as per rule 30 Distance apart 9 3/4 Number and pitch of Stays in each 3-7 3/4

Working pressure by rules 182 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 -

Lloyd's Register Foundation

W1213-0159

**DONKEY BOILER**— No. *One*. Description *Cylindrical Single ended.*  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ Date of test \_\_\_\_\_ Where fixed *Stokehold.*  
 Working pressure tested by hydraulic pressure to \_\_\_\_\_ No. of Certificates \_\_\_\_\_ 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 \_\_\_\_\_ 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 \_\_\_\_\_

*Planned Report attached*

**SPARE GEAR.** State the articles supplied:— *Top & bottom end connecting rod bolts and nuts. Set of coupling bolts. Two main bearing bolts. Set of feed & bilge pump valves. H & M P piston rings. L P piston springs. Bolts & nuts assorted.*

The foregoing is a correct description,  
**FOR BLAIR & Co., LIMITED.**  
*P. W. Blair* Manufacturer. of main engines & boilers.

**MANAGING DIRECTOR.**  
 Dates of Survey while building: During progress of work in shops— *1905 Dec: 1, 6, 9, 13, 15, 19, 20, 21, 22, 23, 24, 27, 28.* 1906 Jan: 3, 9, 9, 11, 12, 18, 23, 25, 26.  
 During erection on board vessel— *Feb: 13, 6, 7, 8, 9, 14, 22. Mar. 1.*  
 Total No. of visits *31* Is the approved plan of main boiler forwarded herewith *No*

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

*The machinery of this vessel has been constructed under special order, the materials and workmanship are good and efficient and when tested under steam was 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*  
*12.3.06*

The amount of Entry Fee.. £ *2* : *0* : *0* When applied for, *10 MAR 1906*  
 Special .. .. £ *24* : *0* : *0*  
 Donkey Boiler Fee .. .. £ : :  
 Travelling Expenses (if any) £ : :  
*13/3/06*

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

Committee's Minute  
 Assigned **TUES, 20 MAR 1906**  
*+ L.M.C. 3.06*



MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to Newcastle-on-Tyne.

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

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