

# REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES.

THUR, MAR 1896

Received at London Office

No. in Survey held at Stockton-on-Tees Date, first Survey 28<sup>th</sup> Oct 1895 Last Survey 21<sup>st</sup> Feb 1896  
g. Book. (Number of Visits 59)

on the Screw Steamer "Kingtor"

Tons { Gross 2738  
Net 1738

Master Philip Symons Built at Stockton By whom built Ropner & Son When built 1896.

Engines made at Stockton-on-Tees By whom made Blair & Co<sup>y</sup> Lin<sup>ns</sup> when made 1896.

Boilers made at Stockton-on-Tees By whom made Blair & Co<sup>y</sup> Lin<sup>ns</sup> when made 1896.

Registered Horse Power 246. Owners J. Holman & Sons Port belonging to London

Net Horse Power as per Section 28 246.  
Manufacturers HP. 200

**ENGINES, &c.** — Description of Engines Triple expansion. No. of Cylinders Three

Diameter of Cylinders 23"-37"-61" Length of Stroke 42" Revolutions per minute 60 Diameter of Screw shaft as per rule 10.9"  
as fitted 12.2"

Diameter of Tunnel shaft as per rule 10.3" Diameter of Crank shaft journals 12" Diameter of Crank pin 12.2" Size of Crank webs 19.2" x 8.2" built  
as fitted 11.7"

Diameter of screw 16' 0" Pitch of screw 16' 0" No. of blades 4. State whether moveable No. Total surface 73.2 sq ft

No. of Feed pumps 2 Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 Diameter of ditto 4.2" Stroke 30" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines Two. Sizes of Pumps (4" x 5") (9 x 10) No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room Three: 1-3.2" dia<sup>m</sup>, 2-3" dia<sup>m</sup>. In Holds, &c. Fore Hold: 1-3.2" dia<sup>m</sup>, Main Hold: 2-3" dia<sup>m</sup>.  
Aft Hold: 1-3.2" dia<sup>m</sup>, Funnel truss & peak: 1-4" dia<sup>m</sup>.

No. of bilge injections 1 sizes 6" Connected to condenser, or to circulating pump C.P. 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 Yes.

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 See vessel. Is the screw shaft tunnel watertight Yes.

Is it fitted with a watertight door Yes. worked from Pop platform in Engine room.

**BOILERS, &c.** — (Letter for record R) Total Heating Surface of Boilers 3760 sq. ft.

No. and Description of Boilers Two: by ~~rule~~ mult. Single ended Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs

Date of test 7/1/96. Can each boiler be worked separately Yes. Area of fire grate in each boiler 52 sq. ft. No. and Description of safety valves to

each boiler Two: Direct Spring Area of each valve 7.06 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 About 18". Mean diameter of boilers 14' 6.2"

Length 10' 0". Material of shell plates Steel Thickness 1.32" Description of riveting: circum. seams Lap Double long. seams Butt Straps  
overlapping

Diameter of rivet holes in long. seams 1.4" Pitch of rivets 8.2", 4.8". Lap of plates or width of butt straps 1' 3".

Percentages of strength of longitudinal joint 90.6. Working pressure of shell by rules 140 lbs. Size of manhole in shell 17" x 13".

Size of compensating ring 3.2 x 27 x 1.32 No. and Description of Furnaces in each boiler 3: Ribbed Material Steel Outside diameter 41"

Length of plain part top 6.3", bottom 6.3". Thickness of plates top 1.2", bottom 1.2". Description of longitudinal joint welded. No. of strengthening rings ✓

Working pressure of furnace by the rules 169 lbs. Combustion chamber plates: Material Steel Thickness: Sides 3/16" Back 3/16" Top 3/16" Bottom 15/16"

Pitch of stays to ditto: Sides 7.2" x 7.2" Back 7.2" x 6.2" Top 7.2" x 7.2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 192 lbs.

Material of stays Iron Diameter at smallest part 1.75" diam. Area supported by each stay 56" Working pressure by rules 143 lbs. End plates in steam space:

Material Steel Thickness 15/16" Pitch of stays 15" x 15" How are stays secured 3/8" nuts & washers. Working pressure by rules 185 lbs. Material of stays Steel

Diameter at smallest part 2.25" Area supported by each stay 225" Working pressure by rules 144 lbs. Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 12" Working pressure of plate by rules 240 lbs.

Diameter of tubes 3.2" Pitch of tubes 4.2" x 4.5" Material of tube plates Steel Thickness: Front 1" Back 13/16" Mean pitch of stays 9.8"

Pitch across wide water spaces 14" Working pressures by rules 195 lbs 285 lbs. Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 7" x 13.2" Length as per rule 27.2" Distance apart 7.2" Number and pitch of Stays in each 3: 7.2"

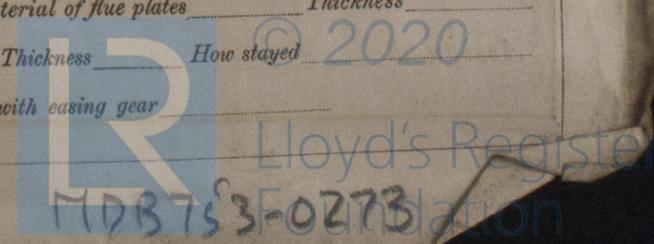
Working pressure by rules 144 lbs. Superheater or Steam chest; how connected to boiler None. Can the superheater be shut off and the boiler worked

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 ✓

Are they 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 *Cylindrical hull with 2 plain furnaces.*  
 Made at *Stockton* By whom made *J. Seaton & Co. Ltd* When made *28/12/95* Where fixed *In Stockton*  
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1183* Fire grate area *20 sq ft* Description of safety valves *Swivel Spring*  
 No. of safety valves *2* Area of each *5.9 sq ft* Pressure to which they are adjusted *84 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *8.6"* Length *8.6"* Material of shell plates *Steel* Thickness *15/32"*  
 Description of riveting long seams *Lap - quadruple* Diameter of rivet holes *13/16"* Whether punched or drilled *punched* Pitch of rivets *4 1/4"*  
 Lap of plating *6 5/8"* Per centage of strength of joint Rivets *89* Thickness of shell *iron* plates *3/32"* Radius of do. *pitch* No. of Stays to do. *16 1/2 x 11*  
 Dia. of stays *2 1/2" iron* Diameter of furnace Top *30"* Bottom *24"* Length of furnace *5.9"* Thickness of furnace plates *1/16"* Description of joint *Welded* Thickness of furnace crown plates *17/32" 1/16"* Stayed by *1 1/2" iron stays 8 x 8 1/2" pitch* Working pressure of shell by rules *80 lbs*  
 Working pressure of furnace by rules *99 lbs* Diameter of *water* tubes *3"* Thickness of *water* tubes plates *1/8" 1/16"* Thickness of *water* tubes *11 B.W.G.*

**SPARE GEAR.** State the articles supplied:— *Propeller; 2 Main Bearing Bolts, 2 Crank pin Bolts, 2 Crosshead Bolts, 1 Set Coupling Bolts, 1 Set Piston springs, 1 Set Feed & Sledge pump valves, 1 Set Circulating pump valves, 6 Condenser Tubes, 6 Junk Ring Bolts, Bolts nuts & Iron granular sizes.*

The foregoing is a correct description,  
**FOR BLAIR & CO., LIMITED** Manufacturers of main Engines & Boilers.  
*W. Bowie*

SECRETARY.

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

Dates of Survey while building  
 During progress of work in shops *1895 Oct 28 Feb 15 16 19 21 26 28 Dec 3 5 6 10 11 13 16 14 18 20 23 24 26 30* 1896 Jan 4 4 8 10 15 16 21 24 28  
 During erection on board vessel *1896 Feb 5 5 4 12 13 14 18 19 21*  
 Total No. of visits *Thirty nine*

The Engines and Boilers of this vessel have been built under special survey and the materials and workmanship are good. When fitted on board they were examined under full steam and worked satisfactorily.

The Machinery throughout is now in good and efficient condition and eligible in my opinion to have the notation **L.M.C. 2, 96** marked in the Society's Register Book

It is submitted that this vessel is eligible for THE RECORD

**L.M.C. 2.96.**

*W. Bowie*  
 5.3.96

*Wm R. Austin*  
 5.3.96

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 2 : " : "	When applied for,
Special .. .. .	£ 32 : 6 : "	2.3.1896
Donkey Boiler Fee .. .	£ : : "	When received,
Travelling Expenses (if any) £	: : "	2.3.1896

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

Committee's Minute

FRI, MAR 6 1896

MACHINE CERTIFICATE WRITTEN

Assigned

*+ L.M.C. 2.96*



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