

# REPORT ON MACHINERY.

Mdt. No. 1433  
N. No. 9620

Port of Middlesbrough

Received at London Office 18

No. in Survey held at Stockton-on-Tees Date, first Survey 14<sup>th</sup> August 1894 Last Survey 13<sup>th</sup> March 1895

Reg. Book on the Screw Steamer "Ras Rowa" (Number of W.M. 42) W.M. 6 11/3/95 Gross 2840 Tons Net 1830 When built 1895

Master J. Deason Built at Hartlepool By whom built Furness, Withy & Co. Ltd.

Engines made at Stockton-on-Tees By whom made Blair & Co. Ltd. when made 1895

Boilers made at Stockton-on-Tees By whom made Blair & Co. Ltd. when made 1895

Registered Horse Power 235 Owners Ras Steam Shipping Co. Ltd. Port belonging to London

Nom. Horse Power as per Section 28 236  
Manufacturers H 190

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

Diameter of Cylinders 23"-37 1/2"-61 1/2" Length of Stroke 39" Revolutions per minute 60 Diameter of Screw shaft as per rule 10.7"  
as fitted 12 1/4"

Diameter of Tunnel shaft as per rule 10.2" Diameter of Crank shaft journals 11 3/4" Diameter of Crank pin 12 1/4" Size of Crank webs 19 1/4" x 8 3/8"  
as fitted 11 1/2"

Diameter of screw 16'0" Pitch of screw 15'6" No. of blades 4 State whether moveable No. Total surface 41 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 Two Sizes of Pumps (Feed 14" x 8" Ballast 7 1/2" x 9") No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three: Port 3' dia. Centre 3' dia. Starboard 3' dia. In Holds, &c. Forepeak: 1-2 1/2" dia. Forehold well  
1-3 1/2" dia. Mainhold well: 1-3 1/2" dia. Afterhold well: 1-3 1/2" dia. Aftermost hold well: 1-3 1/2" Tunnel well: 1-2 1/2"

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 None fitted

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 New vessel Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door yes worked from Upper platform

BOILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 3528 sq. ft. 35 1/4

No. and Description of Boilers Two: cylindrical met. Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs.

Date of test 24/1/94. 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 4.06 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 16" Mean diameter of boilers 14'0 3/4"

Length 10'0" Material of shell plates Steel Thickness 1 1/2" Description of riveting: circum. seams Lap Double long. seams D. Butt Straps

Diameter of rivet holes in long. seams 1 7/8" Pitch of rivets 8" 4" Lap of plates or width of butt straps 1'6" x 1" thick

Per centages of strength of longitudinal joint rivets 88.9 plate 85 Working pressure of shell by rules 166 lbs. Size of manhole in shell 14 1/2" x 15"

Size of compensating ring 31 x 27 x 1 1/2" No. and Description of Furnaces in each boiler 3: Corrugated Material Steel Outside diameter 3'6"

Length of plain part top 26 1/2" Thickness of plates crown 1 1/2" Description of longitudinal joint Welded. No. of strengthening rings -  
bottom 26 1/2"

Working pressure of furnace by the rules 146 lbs. Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 7/8"

Pitch of stays to ditto: Sides 3/2" x 3/4" Back 3/2" x 3/4" Top 3/2" x 3/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs.

Material of stays Iron Diameter at smallest part 1 7/8" Area supported by each stay 54 sq. in. Working pressure by rules 149 lbs. End plates in steam space: c. cast-iron Steel

Material Steel Thickness 3/2" Pitch of stays 16 1/2" x 15" How are stays secured See nuts & washers. Working pressure by rules 168 lbs. Material of stays Steel

Diameter at smallest part 2 1/2" Area supported by each stay 24 3/4 sq. in. Working pressure by rules 181 lbs. Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 12 5/8" Working pressure of plate by rules 160 lbs.

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 5/8" Material of tube plates Steel Thickness: Front 1" Back 1 1/8" Mean pitch of stays 9 1/8"

Pitch across wide water spaces 14 1/4" Working pressures by rules 189 lbs. - 258 lbs. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 1/2" x 13 1/8" Length as per rule 27 1/2" Distance apart 3 3/4" Number and pitch of Stays in each 3: 3/4"

Working pressure by rules 148 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

HPL 374-0191

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**DONKEY BOILER**— Description *Vertical with 6 cross water tubes.*  
 Made at *Stockton* By whom made *Thos. Sudron & Co. Ltd.* When made *2/1/94* Where fixed *In Stokened*  
 Working pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* No. of Certificate *987* Fire grate area *28 5/8* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *5.94* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *7' 0"* Length *14' 0"* Material of shell plates *Steel* Thickness *1 3/32"*  
 Description of riveting long seams *Lap Double* Diameter of rivet holes *1 3/16"* Whether punched or drilled *Punched* Pitch of rivets *2 3/4"*  
 Lap of plating *4 1/4"* Per centage of strength of joint Rivets *40.4* Thickness of shell crown plates *9/16"* Radius of do. *5' 9"* No. of Stays to do. *3*  
 Dia. of stays *1 3/4"* Diameter of furnace Top *5' 3"* Bottom *6' 4 1/2"* Length of furnace *6' 6"* Thickness of furnace plates *2 3/32"* Description of joint *Lap Single* Thickness of furnace crown plates *5/8"* Stayed by *Same as steel crown* Working pressure of shell by rules *82 lbs*  
 Working pressure of furnace by rules *82 lbs* Diameter of uptake *16 1/2"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

**SPARE GEAR.** State the articles supplied:— *Propeller, 2 main bearing bolts & nuts, 2 top end bolts & nuts, 2 bottom end bolts & nuts, 1 set of shaft coupling bolts & nuts, 2 feed valves, 2 bilge valves, check valves for main & donkey feed piston spring, 6 boiler tubes, nuts, bolts & iron assorted.*

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

*P. A. Blair*

Manufacturers of main Engines & Boilers.

DIRECTOR.

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

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

The machinery is now in good and efficient condition and will be eligible in our opinion to have the record of **L.M.C. 3, 95** marked in the Register Book when the following work has been completed:—The Donkey Boiler to be secured in place, its mountings fitted and examined under steam the pumping arrangements to be completed as per approved plan; the Pannel to be made watertight and a w.s. door fitted; and spare gear to be examined.

The above mentioned fittings have been satisfactorily completed.

*Richard Hirst*

*[Signature]*

It is submitted that  
 this vessel is eligible for  
**THE RECORD + L.M.C. 3-95**

*H.A.*

*21-3-95*

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 2 : " : "	When applied for,
Special .. .. .	£ 3.1 : 16 : "	19.3.18.95
Donkey Boiler Fee .. .. .	£ : : "	When received,
Travelling Expenses (if any) £	: : "	19.3.18.95

*Robt. Balfour*

*Wm. Austin*

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

Committee's Minute **FRIDAY 22 MAR 1895**

Assigned

*+ L.M.C. 3, 95*



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