

# REPORT ON MACHINERY.

Mdt No. 969  
H. H. M. 9102

Port of MIDDLESBROUGH-ON-TEES.

FP 2 JUN 1893

Received at London Office 18

No. in Survey held at Stockton-on-Tees. Date, first Survey 15<sup>th</sup> Feb Last Survey 25<sup>th</sup> May 1893  
Reg. Book. (Number of Visits 24)

on the Screw Steamer "Plympton."

Tons { Gross 2869.  
Net 1850.

Master H. R. Page Built at Hartlepool By whom built Furness, Withy & Co. Ltd. When built 1893.

Engines made at Stockton-on-Tees. By whom made Blair & Co. Ltd. when made 1893.

Boilers made at Stockton-on-Tees. By whom made Blair & Co. Ltd. when made 1893.

Registered Horse Power 250. Owners Commercial S. S. Co. Ltd. Port belonging to London.

Nom. Horse Power as per Section 28 256.  
Manufacturers H. P. 210

**ENGINES, &c.—** Description of Engines Triple Expansion. No. of Cylinders Three  
Diameter of Cylinders 23"-38"-62½" Length of Stroke 42" Revolutions per minute 65 Diameter of Screw shaft as per rule 11"  
Diameter of Tunnel shaft as fitted 11¼" Diameter of Crank shaft journals 12½" Diameter of Crank pin 13" Size of Crank webs 20" x 8½"  
Diameter of screw 17'0" Pitch of screw 16'0" No. of blades 4 State whether moveable No Total surface 36 ft²  
No. of Feed pumps 2 Diameter of ditto 3¼" Stroke 30" Can one be overhauled while the other is at work Yes.  
No. of Bilge pumps 2 Diameter of ditto 4½" Stroke 30" Can one be overhauled while the other is at work Yes.  
No. of Donkey Engines Two Sizes of Pumps (4x8") (9x10") No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Three: P 2¼" C 3" S 2¼" In Holds, &c. Fore Peak—one: 2½ dia Fore Hold—Two: 3" dia  
Main Hold—Two: 3" dia After Hold—Two: 3" dia Aftermost Hold—Two: 3" dia Tunnel—one: 3½ dia  
No. of bilge injections 1 sizes 4" Connected to condenser, or to circulating pump Yes. Is a separate donkey suction fitted in Engine room & size Yes. 4½ dia  
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 New vessel Is the screw shaft tunnel watertight Yes  
Is it fitted with a watertight door yes worked from Top platform of engine room

**BOILERS, &c.—** (Letter for record A.) Total Heating Surface of Boilers 3898 sq. ft.  
No. and Description of Boilers Two: Cylindrical tubular Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs  
Date of test 27/4/93 Can each boiler be worked separately Yes. Area of fire grate in each boiler 52½ ft² No. and Description of safety valves to  
each boiler Two: Direct Spring Area of each valve 7.06 ft² Pressure to which they are adjusted 16½ lbs Are they fitted  
with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork About 12" Mean diameter of boilers 14'9½"  
Length 10'0" Material of shell plates Steel Thickness 1½" Description of riveting: circum. seams Lap Double long. seams D: Butt Straps.  
Diameter of rivet holes in long. seams 1¼" Pitch of rivets 8½" 4½". Lap of plates or width of butt straps 1'5¾"  
Percentage of strength of longitudinal joint 92 Working pressure of shell by rules 166 lbs Size of manhole in shell 16" x 12"  
Size of compensating ring 28" x 24" x 1½" No. and Description of Furnaces in each boiler 3: Ribbed Material Steel Outside diameter 3'4"  
Length of plain part 6'3" Thickness of plates 1½" Description of longitudinal joint Welded No. of strengthening rings —  
Working pressure of furnace by the rules 145 lbs Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 15/16"  
Pitch of stays to ditto: Sides ¾" x ¾" Back ¾" x ¾" Top ¾" x ¾" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs  
Material of stays Iron Diameter at smallest part 1½" Area supported by each stay 55 ft² 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 Double Nuts Working pressure by rules 185 lbs Material of stays Iron  
Diameter at smallest part 2½" Area supported by each stay 228 ft² Working pressure by rules 163 lbs Material of Front plates at bottom Steel  
Thickness 1" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 11¼" Working pressure of plate by rules 185 lbs  
Diameter of tubes 3¼" Pitch of tubes 4½" x 4½" Material of tube plates Steel Thickness: Front 1" Back 13/16" Mean pitch of stays 11¼"  
Pitch across wide water spaces 14½" Working pressures by rules 189½ & 188 lbs Girders to Chamber tops: Material Steel Depth and  
Thickness of girder at centre 4" x 1½" Length as per rule 27½" Distance apart 4½" Number and pitch of Stays in each 3: ¾"  
Working pressure by rules 168 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  
Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness  
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 Multitubular, Blakes' Patent.*  
Made at *Manchester* By whom made *James Blake* When made *27/2/93* Where fixed *In Stockholm*  
Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1146* Fire grate area *11 sq. ft* Description of safety valves *Spring*  
No. of safety valves *one* Area of each *9.62* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *6' 0"* Length *14' 0"* Material of shell plates *Steel* Thickness *3/32"*  
Description of riveting long seams *Lap Double rivet* Diameter of rivet holes *3/8"* Whether punched or drilled *D* Pitch of rivets *2 1/4"*  
Lap of plating *4 1/2"* Per centage of strength of joint Rivets *49* Thickness of shell crown plates *13/32"* Radius of do. *3 ft* No. of Stays to do. *None*  
Dia. of stays. — Diameter of furnace Top *2' 4"* Bottom *4' 0"* Length of furnace *3' 6"* Thickness of furnace plates *1/2"* Description of joint *Lap Single* Thickness of furnace crown plates *9/16"* Stayed by *fussets 3/8"* Working pressure of shell by rules *81 lbs*  
Working pressure of furnace by rules *89 lbs* Diameter of <sup>tubes</sup> uptake *3"* Thickness of <sup>tube</sup> uptake plates *9/16"* Thickness of water tubes

SPARE GEAR. State the articles supplied:— *1 Propeller, 1/2 Crank shaft, 2 Main Bearing Bolts, 2 Connecting Rod Bolts, 2 Crosshead Bolts, 1 Set Coupling Bolts, 1 Set Piston Springs, 1 Set Feed & Bilge pump valves, Bolts, nuts & Iron various sizes.*

The foregoing is a correct description,  
*The Blair & Co Limited, T. G. F. Blair, Manufacturers of main Engines & Boilers.*

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

*The Engines and Boilers of this vessel have been constructed under special survey and the workmanship is good. When fitted on board they were examined under steam and worked satisfactorily. The Machinery of this vessel is now in good and efficient condition and will be eligible in my opinion to have the record*  
✠ *L.M.C. 5, 93.* *marked in the Register Book when the following work has been completed:— The Donkey Boiler and its mountings to be examined under steam; The funnel to be completed and made watertight; and the pumping arrangements to be completed in Holds and Tunnel.*

*The above mentioned work has been completed in a satisfactory manner.*  
*H. Stoddart*

*It is submitted that this vessel is eligible for THE RECORD + L.M.C. 5. 93.—*

*Sub 2/6/93—*

Certificate (if required) to be sent to

The amount of Entry Fee.. £ *2* : - : When applied for,  
Special .. .. £ *32 16* : - : *1. 6. 18. 93.*  
Donkey Boiler Fee .. .. £ : : : When received, *1. 6. 18. 93.*  
Travelling Expenses (if any) £ *Machinery Certificate*

Committee's Minute

Assigned

WRITTEN.  
TUES. 6 JUN 1893

*+ L.M.C. 5, 93*

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



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Foundation