

# REPORT ON MACHINERY.

Port of Sunderland

WED. 17 JAN 1894

Received at London Office

No. in Survey held at Sunderland  
Reg. Book.

Date, first Survey July 15/93 Last Survey January 16<sup>th</sup> 1894  
(Number of Visits 30)

on the 3/3 "Whitburn"

Tons { Gross 2594.28  
Net 1655.06  
When built 1893-94

Master Hutton Built at Sunderland By whom built Short Bros.

Engines made at S'land By whom made J Dickinson when made 1893-94

Boilers made at S'land By whom made J Dickinson when made 1893-94

Registered Horse Power 700 Owners Whitburn S.S. Co. G. Burchart Port belonging to Sunderland  
Manager

Nom. Horse Power as per Section 28 241

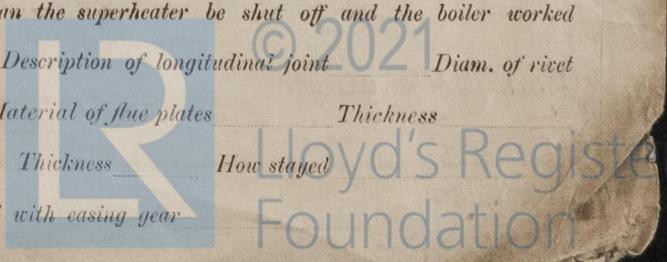
**ENGINES, &c.**— Description of Engines Tri Compound 30 crank S. No. of Cylinders 3  
 Diameter of Cylinders 23 1/2" (3 1/2") 161" Length of Stroke 42" Revolutions per minute 70 Diameter of Screw shaft as per rule 11 1/4"  
 Diameter of Tunnel shaft as fitted 10 3/4" Diameter of Crank shaft journals 11 1/4" Diameter of Crank pin 11 1/4" Size of Crank webs patent  
 Diameter of screw 15 feet Pitch of screw 15 9" No. of blades 4 State whether moveable f Total surface 70 f  
 No. of Feed pumps 2 Diameter of ditto 3 1/4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps 5 1/4 x 3 1/2 x 5 1/8 x 9 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room D 3" C 3 1/2" S 3" direct 3" In Holds, &c. N<sup>o</sup> 1 hold 2 of 2 1/4" N<sup>o</sup> 2 hold 2 of 2 1/4" N<sup>o</sup> 3 hold 2 of 2 1/4" N<sup>o</sup> 4 hold well suction 3"  
 No. of bilge injections 1 sizes 4" 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 new vessel Is the screw shaft tunnel watertight yes  
 Is it fitted with a watertight door yes worked from top platform

**BOILERS, &c.**— (Letter for record S.) Total Heating Surface of Boilers 3650 f  
 No. and Description of Boilers 2 Single ended Cyl. Multi-h. Working Pressure 160 Tested by hydraulic pressure to 320 US  
 Date of test 18/10/93 Can each boiler be worked separately yes Area of fire grate in each boiler 56 f No. and Description of safety valves to each boiler 2 Spring Area of each valve 7.07 Pressure to which they are adjusted 165 US Are they fitted with casing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean diameter of boilers 14 feet  
 Length 10' 3" Material of shell plates S. Thickness 1 1/8" Description of riveting: circum. seams d.r. lap long. seams t.r. butt  
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8" Lap of plates or width of butt straps 18" Straps  
 Per centages of strength of longitudinal joint ricets 101.7 plate 84.37 Working pressure of shell by rules 160 US Size of manhole in shell 16" x 12"  
 Size of compensating ring 8" x 1 1/8" No. and Description of Furnaces in each boiler 3 plain Material S. Outside diameter 3' 6"  
 Length of plain part top 6-6 bottom 6-10 Thickness of plates croon 3 49" bottom 6 1/4" Description of longitudinal joint welded No. of strengthening rings —  
 Working pressure of furnace by the rules 160 1/4 US Combustion chamber plates: Material S. Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 7/8"  
 Pitch of stays to ditto: Sides 9 1/2 x 9 1/2" Back 9 1/2 x 9 1/2" Top 9 1/2 x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 162 US  
 Material of stays S. Diameter at smallest part 1 1/16" Area supported by each stay 83 1/4" Working pressure by rules 161 US End plates in steam space: Material S. Thickness 1 1/16" Pitch of stays 18 1/2 x 15" How are stays secured d. nuts Working pressure by rules 165 US Material of stays S.  
 Diameter at smallest part 2 1/2" Area supported by each stay 2 1/3 1/4" Working pressure by rules 166 US Material of Front plates at bottom S.  
 Thickness 3/4" Material of Lower back plate S. Thickness 7/16" Greatest pitch of stays 14 1/2" Working pressure of plate by rules 164 US  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates S. Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9"  
 Pitch across wide water spaces 15 1/4" Working pressures by rules 174 US Girders to Chamber tops: Material S. Depth and thickness of girder at centre 7 1/2 x 1 1/2" Length as per rule 28.5 Distance apart 9 1/2" Number and pitch of Stays in each 2 of 9 1/2"  
 Working pressure by rules 182 US Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked separately  

Boles	Diameter	Length	Thickness of shell plates	Material	Description of longitudinal joint	Diam. of rivet

of stiffened with rings	Pitch of rivets	Working pressure of shell by rules	Diameter of flue	Material of flue plates	Thickness	How stayed

Working pressure of end plates — Area of safety valves to superheater — Are they fitted with casing gear —



**DONKEY BOILER**— Description *Vertical 4 cross tubes.*  
 Made at *Stoke Newington* By whom made *Riley Bros.* When made *10/11/93* Where fixed *Stokehole*  
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *739* Fire grate area *26 sq ft* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *8'3"* Pressure to which they are adjusted *83 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no.* Diameter of donkey boiler *6'-11 1/8"* Length *15 feet* Material of shell plates *S.* Thickness *7/16"*  
 Description of riveting long. seams *lap double* Diameter of rivet holes *7/8"* Whether punched or drilled *d.* Pitch of rivets *3 3/8"*  
 Lap of plating *4 1/4"* Per centage of strength of joint Rivets *4.5* Thickness of shell crown plates *9/16"* Radius of do. *5 ft* No. of Stays to do. *7*  
 Dia. of stays. *1 1/2"* Diameter of furnace Top *5 1/2 feet* Bottom *6 feet* Length of furnace *5 ft.* Thickness of furnace plates *7/8"* Description of joint *lap single* Thickness of furnace crown plates *9/16"* Stayed by *Same as shell crown* Working pressure of shell by rules *80 lbs*  
 Working pressure of furnace by rules *79 1/4 lbs* Diameter of uptake *1 1/4"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

**SPARE GEAR.** State the articles supplied:— *1 set of connecting rod bolts and nuts. 2 main bearing bolts and nuts. 1 set of coupling bolts and nuts. 1 set of feed and bilge pump valves. propeller nuts bolts and iron assorted.*

The foregoing is a correct description,

*M. Dickenson.* Manufacturer. main engines & boilers

**General Remarks** (State quality of workmanship, opinions as to class, &c. *Machinery and boilers built under special survey. materials and workmanship good and efficient. main steam pipes tested by hydraulic to double the working pressure. sluice valves, pumps, and watertight doors in good working condition. In my opinion the machinery and boilers of this vessel are in good and safe working order, eligible for the notation in the Register Book of L.M.C. 1/94.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 1-94

*N.A.*  
*17-1-94*

*[Large handwritten signature]*

Certificate (if required) to be sent to **MACHINERY**  WRITTEN  
 The amount of Entry Fee.. £ *2* : - : When applied for,  
 Special .. .. £ *32* : *1* : *16 Jan 1894*  
 Donkey Boiler Fee .. .. £ - : - : *not paid*  
 Travelling Expenses (if any) £ - : - : *20 .. 18 94*

*J. J. Findlay*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI 19 JAN 1894

Assigned

*+ L.M.C. 1, 94*



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