

## 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 *200* Owners *Whitburn S.S. Co. G. Batchart* Port belonging to *Sunderland*Nom. Horse Power as per Section 28 *241* Manager

ENGINES, &c.— Description of Engines *Tri Compound, 30 crank S.* No. of Cylinders *3*.

Diameter of Cylinders *23 1/2" (3 1/2") 61"* Length of Stroke *42"* Revolutions per minute *70* Diameter of Screw shaft as per rule *1 1/4"*

Diameter of Tunnel shaft as fitted *10 3/4"* Diameter of Crank shaft journals *1 1/4"* Diameter of Crank pin *1 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" x 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° 1 hold 2 of 2 1/4" N° 2 hold 2 of 2 1/4" N° 3 hold 2 of 2 1/4" N° 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 lbs.*

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 lbs.* Are they fitted with easing 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 rivets *101.7* plate *84.37* Working pressure of shell by rules *160 lbs.* 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 crown *3 1/4"* bottom *6 1/4"* Description of longitudinal joint *welded* No. of strengthening rings *—*

Working pressure of furnace by the rules *160 lbs.* 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 1/8" x 9 1/8"* Back *9 1/8" x 9 1/8"* Top *9 1/8" x 9 1/8"* If stays are fitted with nuts or riveted heads *nuts.* Working pressure by rules *162 lbs.*

Material of stays *S.* Diameter at smallest part *1 1/16"* Area supported by each stay *83 1/4"* Working pressure by rules *161 lbs.* End plates in steam space: Material *S.* Thickness *1 1/16"* Pitch of stays *18 1/4" x 15"* How are stays secured *d. nuts.* Working pressure by rules *165 lbs.* 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 lbs.* Material of Front plates at bottom *S.*

Thickness *3/4"* Material of Lower back plate *S.* Thickness *1/16"* Greatest pitch of stays *14 1/2"* Working pressure of plate by rules *164 lbs.*

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 lbs.* Girders to Chamber tops: Material *S.* Depth and thickness of girder at centre *7 1/8" x 1 1/2"* Length as per rule *28.5* Distance apart *9 1/8"* Number and pitch of Stays in each *2 of 9 1/8"*

Working pressure by rules *182 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	How stayed
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 4 cross tubes.*  
 Made at *Stoke Newington* By whom made *Riley Bros.* When made *10/11/93* Where fixed *Stoke Newington*  
 Working pressure *80* tested by hydraulic pressure to *160 lbs* No. of Certificate *739* Fire grate area *26 sq ft* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *8 sq ft* 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 1/8"*  
 Lap of plating *4 1/4"* Per centage of strength of joint Rivets *7/4 1/2"* 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 *52 ft* Bottom *6 ft* 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. Dickinson.* 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*

Certificate (if required) to be sent to

MACHINERY  
 WRITTEN

The amount of Entry Fee.. £ *2* : - : When applied for,  
 Special .. .. £ *32* : *1* : *16/11/94*  
 Donkey Boiler Fee .. .. £ - : - : *not paid*  
 Travelling Expenses (if any) £ - : - : *20/- 18/9/94*

*J. J. Finlay*  
 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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