

## REPORT ON MACHINERY.

MON 5 DEC 1898

Port of Sunderland

Received at London Office

No. in Survey held at Sunderland Date, first Survey June 8<sup>th</sup> 98 Last Survey Nov 26<sup>th</sup> 1898  
 Reg. Book. S/S "Abchurch" (Number of Visits 34)  
 on the S/S "Abchurch" Tons { Gross 1621  
 Net 1005  
 Master J. Williamson Built at Sunderland By whom built Strand Shipwry Co. When built 1898  
 Engines made at Sunderland By whom made H. E. M. Engle & Co. when made 1898  
 Boilers made at " By whom made " when made 1898  
 Registered Horse Power " Owners Lunnick & Co. Ltd. Port belonging to London  
 Nom. Horse Power as per Section 28 159 Is Electric Light fitted no

ENGINES, &c.—Description of Engines Tri C. & D. No. of Cylinders 3 No. of Cranks 3  
 Diameter of Cylinders 19" 31" 51" Length of Stroke 33 Revolutions per minute 84 Diameter of Screw shaft as per rule 9.39  
as fitted 8.47 Diameter of Tunnel shaft as fitted 8.5 Diameter of Crank shaft journals 9.25 Diameter of Crank pin 9 1/4 Size of Crank webs 10 1/2" x 6"  
 Diameter of screw 13 ft Pitch of screw 13 ft No. of blades 4 State whether moveable f Total surface 45 ft<sup>2</sup>  
 No. of Feed pumps 2 Diameter of ditto 2 3/4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 3" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps 5 1/2 x 3 1/2 x 5 1/2 & 6" x 7" x 9" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room B 2 1/2" C 3" S 2 1/2" In Holds, &c. N<sup>o</sup> 1-2 of 2 1/2 N<sup>o</sup> 2-2 of 2 1/2  
A.W. 2 1/2"  
 No. of bilge injections 1 sizes 3" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size yes 2 1/2"  
 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 —  
 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  
 That 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 7-11-98 Is the screw shaft tunnel watertight yes  
 Is it fitted with a watertight door yes worked from top platform

OILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 2525 Is forced draft fitted no  
 No. and Description of Boilers 1 Cyl. Multibore &c. Working Pressure 160 lb Tested by hydraulic pressure to 320 lb  
 Date of test 31/8/98 Can each boiler be worked separately yes Area of fire grate in each boiler 66 ft<sup>2</sup> No. and Description of safety valves to  
 each boiler 2 Spring Area of each valve 8.29 Pressure to which they are adjusted 16.5 lb Are they fitted  
 with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 10" Mean diameter of boilers 15' 3 1/2"  
 Length 11 ft Material of shell plates S. Thickness 1 1/2" Description of riveting: circum. seams d. r lap long. seams f. r. d. butt  
 Diameter of rivet holes in long. seams 1 7/32" Pitch of rivets 8 1/8" Lap of plates or width of butt straps 1 1/4"  
 Per centages of strength of longitudinal joint 87.87 Working pressure of shell by rules 162 lb Size of manhole in shell 16" x 12"  
 plate 85.46 Size of compensating ring 30 x 26 x 1 1/2" No. and Description of Furnaces in each boiler 4 plain Material S. Outside diameter 36"  
 Length of plain part top 7 ft Thickness of plates crown 3 3/32" Description of longitudinal joint Butt Strap S. r. No. of strengthening rings —  
bottom 7.6" Working pressure of furnace by the rules 173 lb Combustion chamber plates: Material S. Thickness: Sides 7/8" Back 2 1/32" Top 7/8" Bottom 1"  
 Pitch of stays to ditto: Sides 9 1/4 x 9 1/4" Back 9 1/8 x 9 1/4" Top 9 1/4 x 7 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 162 lb  
 Material of stays S. Diameter at smallest part 1.49 Area supported by each stay 83 1/4" Working pressure by rules 176 End plates in steam space:  
 Material S. Thickness 1 1/8" Pitch of stays 23 1/2 x 22 1/4" How are stays secured d. nuts Working pressure by rules 168 lb Material of stays S  
 Diameter at smallest part 3.6 Area supported by each stay 53.5 Working pressure by rules 183 lb Material of Front plates at bottom S.  
 Thickness 3/4" Material of Lower back plate S. Thickness 2 5/32" Greatest pitch of stays 12 1/2" Working pressure of plate by rules 174 lb  
 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 14" Working pressures by rules 207 lb Girders to Chamber tops: Material S. Depth and  
 thickness of girder at centre 6 3/4 x 2" Length as per rule 29 7/8 Distance apart 7 1/2" Number and pitch of Stays in each 2 of 9 1/4"  
 Working pressure by rules 199 lb 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 —



**DONKEY BOILER**— Description *Vertical 4 cross tubes*  
 Made at *Stockton*. By whom made *Riley Bros* When made *10/98* Where fixed *Stokehold*  
 Working pressure *80* tested by hydraulic pressure to *160 1/2* No. of Certificate *1811* Fire grate area *24 1/2* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *7.07* Pressure to which they are adjusted *80 1/2* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*. Diameter of donkey boiler *7 ft.* Length *14 ft.* Material of shell plates *S.* Thickness *7/16"*  
 Description of riveting long. seams *d. r. lap* Diameter of rivet holes *5/16"* Whether punched or drilled *p.* Pitch of rivets *3 1/4"*  
 Lap of plating *4 1/2"* Per centage of strength of joint Rivets *82.6* Thickness of shell crown plates *9/16"* Radius of do. *5 ft* No. of Stays to do. *4*  
 Dia. of stays. *1 1/2"* Diameter of furnace Top *5.5"* Bottom *6.0 1/4"* Length of furnace *5-3"* Thickness of furnace plates *5/8"* Description of joint *lap S. P.* Thickness of furnace crown plates *9/16"* Stayed by *as above* Working pressure of shell by rules *82. 1/2"*  
 Working pressure of furnace by rules *86. 4 1/2"* Diameter of uptake *17"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

**SPARE GEAR.** State the articles supplied:— *Spare gear supplied in accordance with Rule Requirements & in addition propellers*

The foregoing is a correct description.  
*North Eastern Marine Engineering Co. Ltd.* Manufacturer. *man engines & boilers*

Dates of Survey while building  
 During progress of work in shops—  
 During erection on board vessel—  
 Total No. of visits *34.*  
*First survey June 8. 98 Last survey Nov. 26. 98*

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

**ENGINES**—Length of stern bush *3' 3 1/2"* Diameter of crank shaft journals *as per rule 8.93"* Diameter of thrust shaft under collars *92"*  
**BOILERS**—Range of tensile strength *29-32* Are they welded or flanged *flanged* **DONKEY BOILERS**—No. *1* Range of tensile strength *27-32*  
 Is the approved plan of main boiler forwarded herewith *yes.* Is the approved plan of donkey boiler forwarded herewith *no.*

The machinery and boilers of this vessel have been constructed under Special Survey. Materials and workmanship good and efficient; the boilers and main steam pipe were tested satisfactorily by hydraulic pressure to 320 lbs. Owing to the stern frame being broken while launching, the tube had to be drawn to effect repairs. After the post was refitted the boss was rebored & 3 wrought iron rings shrunk on tube at fitting the tube being afterwards satisfactorily fitted. The Owners Superintendent being satisfied with the arrangement  
 In my opinion this vessel is eligible for the record of L.M.C. 11/98 in the register book.

It is submitted that  
 this vessel is eligible for  
 THE RECORD. L.M.C. 11.98.

The amount of Entry Fee. £ *2* : : When applied for.  
 Special £ *23* : *17* : *30 Dec. 1898*  
 Donkey Boiler Fee £ : :  
 Travelling Expenses (if any) £ : :  
 When received, *16.12.98*

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

Committee's Minute **TUES. 6 DEC 1898**

**MACHINERY CERTIFICATE**  
 WRITTEN.

Assigned

*+ L.M.C. 11.98*



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