

# REPORT ON MACHINERY.

Port of Newcastle-on-Tyne

Received at London Office V.D. NOV 1894

No. in Survey held at Newcastle-on-Tyne Date, first Survey 10<sup>th</sup> May Last Survey 15<sup>th</sup> Nov 1894  
Reg. Book. 77 on the Screw Steamer "Banffshire" (Number of Flots 33)  
Master B. Cull Built at Newcastle By whom built R. & W. Hawthorn, Leslie & Co When built 1894  
Engines made at Newcastle By whom made R. & W. Hawthorn, Leslie & Co when made 1894  
Boilers made at Newcastle By whom made R. & W. Hawthorn, Leslie & Co when made 1894  
Registered Horse Power 600 Owners Ederslie Steam Shipping Co Port belonging to Glasgow  
Nom. Horse Power as per Section 28 379 Turnbull Martin & Co. Managers

ENGINES, &c.— Description of Engines Inverted, Rifle Expansion, 3 Cranks No. of Cylinders 3  
Diameter of Cylinders 30, 48, 48 Length of Stroke 54 Revolutions per minute 65 Diameter of Screw shaft as per rule 14.22  
Diameter of Tunnel shaft as per rule 13.15 Diameter of Crank shaft journals 14 3/4 Diameter of Crank pin 15 Size of Crank webs 21 1/2 x 10  
Diameter of screw 18.6 Pitch of screw 21.0 No. of blades 4 State whether moveable yes Total surface 110 sq. feet  
No. of Feed pumps 2 Diameter of ditto 4 1/2 Stroke 27 Can one be overhauled while the other is at work yes  
No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 27 Can one be overhauled while the other is at work yes  
No. of Donkey Engines 3 Sizes of Pumps (10x12) (4x6) (2 3/4 x 4) No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room 3 One 4" dia, Two 3 1/2" dia. In Holds, &c. 10, Two, Foremost hold, Two, Forward hold, Two, Main hold, Two, After hold, One, Aftermost hold, One after well, all 3 1/2" dia  
No. of bilge injections one size 7 1/2" dia Connected to condenser, or to circulating pump Circ. pump Is a separate donkey suction fitted in Engine room & size yes, 4" 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 bulkhead 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 31.10.94 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 S) Total Heating Surface of Boilers 4686 sq. ft.  
No. and Description of Boilers Two, Cyl. multitubular Single Ended Working Pressure 160 lb. Tested by hydraulic pressure to 320 lb.  
Date of test 11.6.94 Can each boiler be worked separately yes Area of fire grate in each boiler 74.5 sq. ft. No. and Description of safety valves to each boiler Two, Spring Area of each valve 14.18 Pressure to which they are adjusted 162 lb. Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers on woodwork 27" Mean diameter of boilers 15.6"  
Length 12.0 Material of shell plates Steel Thickness 1 1/8" Description of riveting: circum. seams double riv. lap long. seams double butt straps  
Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets one row 9", 2 rows 6" Lap of plates or width of butt straps outside 15 1/2", inside 24"  
Per centages of strength of longitudinal joint 89.9 Working pressure of shell by rules 165 lb. Size of manhole in shell 16" x 12"  
Size of compensating ring 7" x 1 1/8" No. and Description of Furnaces in each boiler 3, Purser Material Steel Outside diameter 46.06"  
Length of plain part top 6" Thickness of plates crown 1 1/8" Description of longitudinal joint welded No. of strengthening rings none  
Working pressure of furnace by the rules 163 lb. Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 5/8" Top 9/16" Bottom 3/2"  
Pitch of stays to ditto: Sides 8 1/4" x 8" Back 9" x 8 1/2" Top 8 1/4" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 160 lb.  
Material of stays Steel Area at smallest part 1.74 Area supported by each stay 81.48 Working pressure by rules 171 lb. End plates in steam space: Material Steel Thickness 1 1/8" Pitch of stays 18 1/2" x 15" How are stays secured Double nuts Working pressure by rules 168 lb. Material of stays Steel  
Area at smallest part 6.17 Area supported by each stay 283 Working pressure by rules 196 lb. Material of Front plates at bottom Steel  
Thickness 1" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 15" Working pressure of plate by rules 163 lb.  
Diameter of tubes 3 1/4" Pitch of tubes 4 3/4" x 4 1/2" Material of tube plates Steel Thickness: Front 1" Back 3/4" Mean pitch of stays 9 1/4"  
Pitch across wide water spaces 16 1/2" Working pressures by rules 160 lb. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 3/4" x 1 1/8" Length as per rule 32" Distance apart 8 1/4" Number and pitch of Stays in each 2, 8"  
Working pressure by rules 166 lb. Superheater or Steam chest; how connected to boiler how 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 — 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 *none, for particulars of Auxiliary Boiler see Huddlesbro Report*  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of safety valves \_\_\_\_\_  
 No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_  
 Diameter of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_  
 Description of riveting long. seams \_\_\_\_\_ Diameter of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_  
 Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of Stays to do. \_\_\_\_\_  
 Dia. of stays \_\_\_\_\_ Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_  
 Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— *Crank shaft, Screw shaft, 4 Propeller blades, A set of bolts & nuts for a connecting rod, main bearing, & shaft coupling. A set of rods for the air, circulating, feed, & bilge pumps. Air & Circulating pump bushes & rods, A set of packing-rings & springs for pistons, 13 bolts, nuts, & iron assorted.*  
*The foregoing is a correct description, A set of connecting rod braces, 25 Condensers*

FOR R. & W. HAWTHORN, LESLIE & CO. LTD. Manufacturer of Engines and Steam Boilers  
*J. J. Marshall*

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

*Main steam pipes tested by hydraulic pressure to 320 lbs. per square inch and found tight. The two main boilers are arranged to work with induced draught supplied by two fans each driven a separate engine. The engines and boilers of this vessel have been constructed under Special Survey, and of a good quality of workmanship, they have been examined under steam, the safety valves adjusted and found to work well and are now in safe and efficient working condition and, in my opinion, eligible to have L.M.C. 11.94 recorded in the Register of this Society.*

*Refrigerating engines are fitted on the lower platform of engine room on each side of the main engines.*

*Photo. prints of the main and Auxiliary boilers together with the Huddlesbro. Report on the latter and the Report on the Electric Lighting Installation fitted by Clarke Chapman & Co. are forwarded herewith.*

*It is submitted that this vessel is eligible for THE RECORD + L.M.C 11-94*  
*W.A.*  
*21-11-94*

*Note. The Auxiliary Boiler to be entered on the Register Book as a Donkey Boiler. A.P.R. 8.2.95*  
*Newcastle Office.*

Certificate (if required) to be sent to

The amount of Entry Fee. . . £ 3 : 0 :  
 Special . . . . . £ 38 : 19 :  
 Donkey Boiler Fee . . . . . £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, 20.11.18.94  
 When received, 1/12/95

*A. Stoddart*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRIDAY 23 NOV 1894

Assigned

*+ L.M.C 11.94*



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