

## REPORT ON MACHINERY.

Port of WEST HARTLEPOOL.

THUR. JUN 6 1901

Received at London Office

No. in Survey held at Hartlepool Date, first Survey 26<sup>th</sup> July, 1900 Last Survey May 23<sup>rd</sup> 1901  
 Reg. Bopk. supp. on the Steel S.S. Lustleigh (Number of Visits 10)  
 Master Paul R. Baker Built at Middlesbro' By whom built R. Braggs & Son When built 1901  
 Engines made at Hartlepool By whom made Richardsons, Westgarth & Co. Ltd. when made 1901  
 Boilers made at Hartlepool By whom made Richardsons, Westgarth & Co. Ltd. when made 1901  
 Registered Horse Power 296 Owners Bellamy & Co. Port belonging to Plymouth  
 Nom. Horse Power as per Section 28 296 Is Refrigerating Machinery fitted No. Is Electric Light fitted No.

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders three No. of Cranks three  
 Dia. of Cylinders 23½" - 38" - 64" Length of Stroke 42" Revs. per minute 62 Dia. of Screw shaft as per rule 13½" Lgth. of stern bush 4'-7½"  
 Dia. of Tunnel shaft as per rule 11½" Dia. of Crank shaft journals as per rule 12½" Dia. of Crank pin 12½" Size of Crank webs 8x19½" Dia. of thrust shaft under collars 12½" Dia. of screw 16" - 0" Pitch of screw 16' - 6" No. of blades 4 State whether moveable No Total surface 75 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 2¾" Stroke 27" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 3¾" Stroke 27" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 2 Sizes of Pumps Feed 4x6 duplex Ballast 8½x7" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Four 3½" dia. In Holds, &c. No. 1 Hold Two 3½" No. 2 Hold Two 3½"  
No. 3 Hold Two 3½" No. 4 Hold Two 3½" Tunnel well one 3"  
 No. of bilge injections one sizes 5" Connected to condenser, or to circulating pump separate donkey suction fitted in Engine room & size 3½"  
 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 Yes  
 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 Nov. 1900 Is the screw shaft tunnel watertight apparently  
 Is it fitted with a watertight door yes worked from Top grating

BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 4667 sq. ft. Is forced draft fitted No  
 No. and Description of Boilers 2 Single ended byl. Mult. Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs.  
 Date of test 27. 2. 01 Can each boiler be worked separately Yes Area of fire grate in each boiler 53 sq. ft. No. and Description of safety valves to each boiler Two Spring direct Area of each valve 7.06 sq. in. Pressure to which they are adjusted 185 lbs. Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 16" Mean dia. of boilers 15' - 3" Length 10' - 6" Material of shell plates steel  
 Thickness 1¼" Range of tensile strength 28 - 32 Are they welded or flanged No Descrip. of riveting: cir. seams double long. seams treble  
 Diameter of rivet holes in long. seams 1¼" Pitch of rivets 8½" Lap of plates or width of butt straps 19½"  
 Per centages of strength of longitudinal joint 86.1 Working pressure of shell by rules 182.6 lbs. Size of manhole in shell 13" x 16½"  
 Size of compensating ring 30x30x1¼" No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 46½"  
 Length of plain part top 9½" Thickness of plates crown 9" Description of longitudinal joint mild No. of strengthening rings Yes  
 Working pressure of furnace by the rules 189 lbs. Combustion chamber plates: Material steel Thickness: Sides 19/32" Back 19/32" Top 19/32" Bottom 13/16"  
 Pitch of stays to ditto: Sides 8½x7½" Back 8½x8" Top 7½x8½" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lbs.  
 Material of stays steel Diameter at smallest part 13/8" Area supported by each stay 66 sq. in. Working pressure by rules 180 lbs. End plates in steam space:  
 Material steel Thickness 31/32" Pitch of stays 16" x 15¼" How are stays secured D. M. M. Working pressure by rules 181 lbs. Material of stays steel  
 Diameter at smallest part 23/8" Area supported by each stay 244 sq. in. Working pressure by rules 181 lbs. Material of Front plates at bottom steel  
 Thickness 13/16" Material of Lower back plate steel Thickness 25/32" Greatest pitch of stays 12¾" Working pressure of plate by rules 180 lbs.  
 Diameter of tubes 3½" Pitch of tubes 45" Material of tube plates steel Thickness: Front 1" Back 3/4" Mean pitch of stays 11 7/16"  
 Pitch across wide water spaces 14½" Working pressures by rules 183 lbs. Girders to Chamber tops: Material steel Depth and thickness of girder at centre 4¼" x 15" Length as per rule 28" Distance apart 8½" Number and pitch of Stays in each Two 4½"  
 Working pressure by rules 180 lbs. Superheater or Steam chest; how connected to boiler 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 Yes



DONKEY BOILER— No. *112* Description *Horizontal built 2 plain furnaces.*  
Made at *Stretton* By whom made *J. Sudrow & Coy.* When made *29.3.01* Where fixed *House on main etc.*  
Working pressure *100* tested by hydraulic pressure to *210* No. of Certificate *2244* Fire grate area *25.7* Description of safety valves *Drill Spring*  
No. of safety valves *2* Area of each *5.93* Pressure to which they are tested *100* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *9.0* Length *9.0* Material of shell plates *Steel* Thickness *3/8* Range of tensile strength *27-32* Descrip. of riveting long. seams *Lap treble riveted* Dia. of rivet holes *3/8* Whether punched or drilled *Drilled* Pitch of rivets *1 1/2*  
Lap of plating *6 3/8* Per centage of strength of joint *80.5* Rivets *80.5* Thickness of shell crown plates *3/8* Thickness of do. *18 1/2* No. of Stays to do. *8.2*  
Dia. of stays *2 1/2* Diameter of furnace Top *30"* Bottom *5"* Length of furnace *6'-5 1/2"* Thickness of furnace plates *3/8* Description of joint *welded* Thickness of furnace crown plates *3/8* Stays by *12 1/2* *8 x 8 1/2* pitch Working pressure of shell by rules *117 lbs*  
Working pressure of furnace by rules *101 lbs* Diameter of uptake *3"* Thickness of uptake plates *3/8* Thickness of water tubes *3/8*

SPARE GEAR. State the articles supplied:— *2 bon. rod top + 2 bon. rod bottom end bolts + nuts, 2 Main bearing + one set of coupling bolts, one set of feed + bilge pump valves, a quantity of bolts, nuts + iron, one H.P. + one H.P. ahead eccentric liners, one set firebars complete, one set of Ramsbottom's rings for H.P. 2 Donkey feed check valves. One set of bilge air pump valves, propeller shaft (serap iron), + propeller.*  
The foregoing is a correct description,  
For **RICHARDSON, WESTGARTH & CO. LIMITED** Manufacturer.  
*W. McArthur*

Dates { During progress of work in shops— 1900. July 16 Aug. 3. 14. 17. 27. Sept. 13. 21. 22. 24. 25. Oct. 3. 4. 10. 11. 16. 24. 26. 30. 31. Nov. 2. 8. 10. 12. 14. 16.  
of Survey { During erection on board vessel— 1900. Dec. 1. 2. 3. 4. 5. 6. 7. 10. 11. 12. 13. 14. 15. 18. 21. 1901. Jan. 3. 4. 5. 7. 8. 9. 10. 11. 12. 15. 16. 17. 18. 21. 22.  
while building { Total No. of visits *106* Is the approved plan of main boiler forwarded herewith *Yes*  
Mdb. Feb. 28. Mar. 5. 6. 12. May 7. 14. 15. 16. 20. 21. 23. " " " donkey " " " Stock Sigs.

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

Material of screw shaft *Specially rolled iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No*  
Is the after end of the liner made water tight in the propeller boss *Yes* If the liner is in more than one length are the joints burned *✓*  
If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *✓* If two liners are fitted, is the shaft lapped or protected between the liners *No*.

The Main steam pipes have been tested by hydraulic pressure to 360 lbs. per sq. in. and found tight.  
The engines + boilers of this vessel have been built under Special Survey in accordance with the Rule requirements. The Materials and workmanships are good and efficient, when completed and fitted on board, were tried under steam at moorings with satisfactory results, and are now in good working order, and, in our opinion, eligible to have notation **L.M.C. 5-01** in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 5-01

The amount of Entry Fee.. £ *2* : : When applied for, *17. 5. 01*  
Special .. £ *34* *16* : :  
Donkey Boiler Fee .. £ : : When received, *22. 5. 1901*  
Travelling Expenses (if any) £ : :  
at Hpl

Committee's Minute

FRI. JUN 7 1901

Assigned

+ L.M.C. 5.01

VERY CERTIFICATE  
WRITTEN.

*J. M. A.*  
*6.6.01*  
*W. Smith & Son. R.D. Chilston.*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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Foundation