

# REPORT ON MACHINERY

Pl. No. 12430  
NW 17 47.637

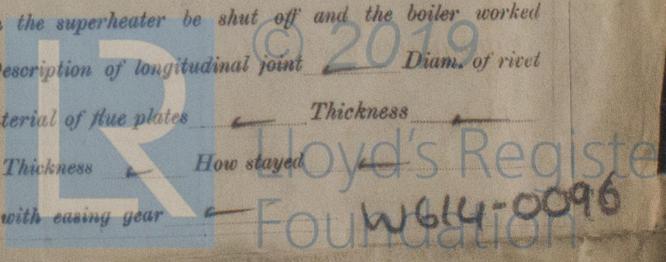
Port of WEST HARTLEPOOL

Received at London Office

No. in Survey held at Hartlepool Date, first Survey 8<sup>th</sup> Feb'y Last Survey 23<sup>rd</sup> Aug<sup>st</sup> 1907  
 Reg. Book. 11 on the Steel S.S. "Rugbeian" (Number of Visits 74)  
 Master R. James Built at Newcastle By whom built Northumberland S.S. Co. Tons { Gross 4042 Net 2650 When built 1904  
 Engines made at Hartlepool By whom made Richardsons, Westgarth & Co. when made 1904  
 Boilers made at Hartlepool By whom made do do when made 1904  
 Registered Horse Power 322 Owners J. Mathias & Sons Port belonging to Abeysdwyth  
 Nom. Horse Power as per Section 28 322 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 24½-40-67" Length of Stroke 45" Revs. per minute 62 Dia. of Screw shaft 11½" Material of screw shaft scrap 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 Length of stern bush 4-10½"  
 Dia. of Tunnel shaft as per rule 12.24" ✓ Dia. of Crank shaft journals as per rule 12.9" ✓ Dia. of Crank pin 13" Size of Crank webs 8" x 25½" Dia. of thrust shaft under collars 13" Dia. of screw 16-9" Pitch of screw 16-9" No. of blades 4 State whether moveable No Total surface 84.6 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 3¾" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 2 Sizes of Pumps Feed 4x6 duplex, Ballast 10x9" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three 3½" dia.  
 In Holds, &c. No. 1. 2 of 3½. No. 2. 2 of 3½"  
 No. of bilge injections one sizes 5" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes 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 none  
 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 upper platform.

**BOILERS, &c.**— (Letter for record S) Total Heating Surface of Boilers 4904 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 13.7.07 Can each boiler be worked separately Yes Area of fire grate in each boiler 52.3 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 12½" Mean dia. of boilers 16'-0" Length 10'-6" Material of shell plates steel  
 Thickness 1½" Range of tensile strength 28.5-31.75 Are they welded or flanged no Descrip. of riveting: cir. seams treble long. seams treble  
 Diameter of rivet holes in long. seams 1½" Pitch of rivets 9½" Lap of plates or width of butt straps 19½"  
 Percentages of strength of longitudinal joint rivets 85% Working pressure of shell by rules 206 lbs. Size of manhole in shell 13" x 16½"  
 Size of compensating ring 29" x 30" x 1½" No. and Description of Furnaces in each boiler 3 Morison Material steel Outside diameter 50½"  
 Length of plain part top 9" Thickness of plates crown 2½" Description of longitudinal joint weld No. of strengthening rings ✓  
 Working pressure of furnace by the rules 212 lbs. Combustion chamber plates: Material steel Thickness: Sides 19/32" Back 19/32" Top 19/32" Bottom 7/8"  
 Pitch of stays to ditto: Sides 4" x 4½" Back 4 13/16" Top 4" x 4 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 193 lbs.  
 Material of stays steel Diameter at smallest part 1 1/8" Area supported by each stay 62 sq. in. Working pressure by rules 188 lbs. End plates in steam space: Material steel Thickness 1" Pitch of stays 16½" x 15½" How are stays secured by nuts Working pressure by rules 185 lbs. Material of stays steel  
 Diameter at smallest part 2 1/8" Area supported by each stay 255 sq. in. Working pressure by rules 211 lbs. Material of Front plates at bottom steel  
 Thickness 7/8" Material of Lower back plate steel Thickness 13/16" Greatest pitch of stays 12 1/4" Working pressure of plate by rules 205 lbs.  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 1 1/32" Back 3/4" Mean pitch of stays 9"  
 Pitch across wide water spaces 14 1/4" Working pressures by rules 194 lbs. Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7 1/2" x 13" Length as per rule 30 1/2" Distance apart 4 3/4" Number and pitch of Stays in each 3-7"  
 Working pressure by rules 184 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 ✓



**DONKEY BOILER**— No. 1 Description *Multitubular*  
 Made at *Garnhead* By whom made *C. Chapman* No. When made *1904* Where fixed *Main deck*  
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *6523* Fire grate area *24.6* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *7.07* Pressure to which they are adjusted *83 1/2* If fitted with casing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *9 ft.* Length *9' 6"* Material of shell plates *S.* Thickness *9/16"* Range of tensile strength *27/32* Descrip. of riveting long. seams *7-7 lap.* Dia. of rivet holes *7/8"* Whether punched or drilled *D* Pitch of rivets *4 1/2*  
 Lap of plating *6 1/2* Per centage of strength of joint *80.7* Rivets *80.7* Thickness of shell ~~plates~~ *1/16* Radius of do. *—* No. of Stays to do. *9*  
 Dia. of stays *1 3/4"* Diameter of furnace Top *33* Bottom *—* Length of furnace *6' 3"* Thickness of furnace plates *3/8"* Description of joint *Weld* Thickness of furnace crown plates *1 1/2"* Stayed by *18 stays* Working pressure of shell by rules *88 1/2*  
 Working pressure of furnace by rules *113* Diameter of uptake *3 1/4"* Thickness of uptake plates *1/16* Thickness of water tubes *1/4"*

**SPARE GEAR.** State the articles supplied:— *2 bon. rod top + bottom end bolts + nuts, 2 main bearings + one set of coupling bolts, one set of feed, bilge, air + cir. pump valves, one set of springs for L.P. piston, a quantity of assorted bolts + iron, propeller, 12 junk rings + bolts, and four feed check valve covers.*

The foregoing is a correct description,  
 For **RICHARDSONS, WESTGARTH & CO. LIMITED**  
*C. Chapman* Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *1904 Feb. 8, 9, 10, 11, Mar. 1, 15, 22, 28, 29, 30, 31, Apr. 6, 7, 8, 11, 13, 14, 15, 18, 19, 20, 21, 22, 25, 26, 27, 28, 30, May, 3, 4, 6, 9, 11, 13, 15, 16, 25*  
 During erection on board vessel— *27 June, 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 27, 30, July, 5, 7, 8, 11, 12, 13, 15, 16, 20, 21, 25, 27, 29, N.W.C.: Aug 23<sup>rd</sup> 04*  
 Total No. of visits *73* Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The main steam pipes have been tested by hydraulic pressure to 360 lbs. per sq. in and found tight. The engines and boilers of this vessel have been built under Special Survey in accordance with the Rule requirements, the materials and workmanship being good and efficient, when completed and fitted on board were tried under steam at moorings with satisfactory results, and eligible, in our opinion, to have L.M.C. 8/04 marked in the Register Book.*

It is submitted that this vessel is eligible for **THE RECORD.** L.M.C. 8.04

*W. Smith*  
 23.9.04  
 20.9.04

The amount of Entry Fee... £ *36* : 2 :  
 Special... £ *36* : 2 :  
 Donkey Boiler Fee... £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, *11.8.04*  
 When received, *15.8.04*

*W. Smith + R. V. Coomber.*  
 Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 Assigned  
 TUES. 27 SEP 1904  
 + L.M.C. 8.04



Certificate (if registered) to be sent to

MASSINGBY CERTIFICATE WRITER.