

# REPORT ON MACHINERY

WED. 2 MAR 1904

Port of WEST HARTLEPOOL

Received at London Office

No. in Survey held at Hartlepool Date, first Survey 4<sup>th</sup> Aug. 1903 Last Survey 24<sup>th</sup> July. 1904  
 Reg. Book. 49 on the Steel S.S. "Manchester Mariner" (Number of Visits 85) Tons { Gross 4106  
 Master P. Linton Built at West Hartlepool By whom built Jurness, Wisby & Co Ltd When built 1904  
 Engines made at Hartlepool By whom made Richardsons, Westgarth & Co Ltd when made 1904  
 Boilers made at Hartlepool By whom made do do when made 1904  
 Registered Horse Power 400 Owners Manchester Liners Ltd Port belonging to Manchester  
 Nom. Horse Power as per Section 28 403 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

**ENGINES, &c.**—Description of Engines Triple expansion No. of Cylinders three No. of Cranks three  
 Dia. of Cylinders 26"-42"-42" Length of Stroke 48" Revs. per minute 65 Dia. of Screw shaft as per rule 14.4" Lgth. of stern bush 5'-2"  
 Dia. of Tunnel shaft as per rule 13.5" Dia. of Crank shaft journals as per rule 13.65" Dia. of Crank pin 14" Size of Crank webs 9 3/4" x 20 1/2" Dia. of thrust shaft under collars 14 3/4" Dia. of screw 17'-6" Pitch of screw 17'-6" No. of blades 4 State whether moceable no Total surface 87 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 3 3/4" Stroke 27" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 27" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps Feed 4 1/2" x 6" Ballast 9" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Four 3 1/2" dia. In Holds, &c. Two of 3 1/2" in each hold  
Spake 2 1/2" and after well 2 1/2" dia.  
 No. of bilge injections one size 6" Connected to condenser, or to circulating pump yes Is a separate donkey suction fitted in Engine room & size Yes. 3 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 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 6400 sq. ft. Is forced draft fitted No  
 No. and Description of Boilers 3 single ended byf. Mull Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs.  
 Date of test 11.12.03 Can each boiler be worked separately yes Area of fire grate in each boiler 48.1 sq. ft. No. and Description of safety valves to each boiler 2 Spring diesel Area of each valve 4.06 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 18" Mean dia. of boilers 14"-14 1/2" Length 11'-0" Material of shell plates steel  
 Thickness 1 3/16" Range of tensile strength 28-32 Are they welded or flanged no Descrip. of riveting: cir. seams treble long. seams treble  
 Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 3/8" Lap of plates or width of butt straps 14"  
 Per centages of strength of longitudinal joint rivets 85.3 Working pressure of shell by rules 183 lbs. Size of manhole in shell 13" x 16 1/2"  
 Size of compensating ring 29" x 30" x 1 3/16" No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 44 1/2"  
 Length of plain part bottom 4'-0" Thickness of plates bottom 9" Description of longitudinal joint weld No. of strengthening rings -  
 Working pressure of furnace by the rules 198 lbs. Combustion chamber plates: Material steel Thickness: Sides 19 1/32" Back 19 1/32" Top 19 1/32" Bottom 7 1/4"  
 Pitch of stays to ditto: Sides 7 x 7 1/16" Back 7 1/16" Top 7 x 7 1/8" 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 3/8" Area supported by each stay 630" Working pressure by rules 188 lbs. End plates in steam space:  
 Material steel Thickness 1 3/32" Pitch of stays 14 3/8" x 14 3/8" How are stays secured D. N. Y. H. Working pressure by rules 180 lbs. Material of stays steel  
 Diameter at smallest part 2 3/8" Area supported by each stay 3150" Working pressure by rules 188 lbs. Material of Front plates at bottom steel  
 Thickness 13 1/16" Material of Lower back plate steel Thickness 13 1/16" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 185 lbs.  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 1 3/32" Back 3 1/4" Mean pitch of stays 9"  
 Pitch across wide water spaces 14 1/2" Working pressures by rules 211 lbs. Girders to Chamber tops: Material steel Depth and thickness of girder at centre 4 3/8" x 1 1/8" Length as per rule 31" Distance apart 4 3/8" Number and pitch of Stays in each 3 - 4"  
 Working pressure by rules 184 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 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 -

If not, state whether, and when, one will be sent



W430-0009

**DONKEY BOILER**— No. *606* Description *Cyl. Multitubular*  
 Made at *Newcastle* By whom made *R. Stephenson & Co* When made *15-10-03* Where fixed *Stoke hold*  
 Working pressure *100lb* tested by hydraulic pressure to *200lb* No. of Certificate *6682* Fire grate area *290* Description of safety valves *Spring direct*  
 No. of safety valves *2* Area of each *5.9* Pressure to which they are adjusted *105 lbs.* If fitted with easing gear *Yes*. If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *10-3* Length *10-0* Material of shell plates *steel* Thickness *3/32* Range of tensile strength *38* Descrip. of riveting long. seams *d. strap* Dia. of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *3 3/4*  
 Lap of plates *9 1/2* Per centage of strength of joint *75* Rivets *83* Thickness of shell crown plates *3/4* Radius of do. *Pitch* No. of Stays to do. *16 1/2 x 15*  
 Dia. of stays. *3-26* Diameter of furnace Top *36 5/8* Bottom *36* Length of furnace *6-4* Thickness of furnace plates *9/16* Description of joint *d. strap* Thickness of furnace crown plates *1/2* Stayed by *J. strap 8 1/2 x 9 1/2* Working pressure of shell by rules *112 lbs.*  
 Working pressure of furnace by rules *121 lbs.* Diameter of uptake *3 1/4* Thickness of uptake plates *F 3/4 1 1/4* Thickness of water tubes *1/8*

**SPARE GEAR.** State the articles supplied:— *2 bon. rod top + 2 bon. rod bottom end bolts + nuts, 2 Main bearing one set of coupling, and 2 piston rod bolts + nuts, one set of feed, bilge, air + air pump valves, one set of rings for H.P. piston, Bolt + nuts, + iron various sizes, one pair crank pin brasses, 2 safety valve springs, propeller + propeller shaft, one air + air pump rod + bucket.*

The foregoing is a correct description,  
 For **RICHARDS & WESTGARTH & CO., LIMITED** Manufacturer.  
*J. M. M. M.*

Dates of Survey while building	During progress of work in shops—	1903 Aug. 26, Sept. 1, 16, 22, 24, 25, Oct. 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 17, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, Nov. 2, 3, 4	Is the approved plan of main boiler forwarded herewith <i>yes</i> " " " donkey " " " <i>no</i>
	During erection on board vessel—	5, 6, 7, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 28, 30, Dec. 1, 3, 7, 8, 10, 11, 14, 15, 16, 17, 18, 19, 22, 30, 1904 Jan. 5, 6, 7, 8, 9, 11, 13, 14, 18	
	Total No. of visits	<i>85</i>	

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

Material of screw shaft *serap iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *yes*  
 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 *yes* If two liners are fitted, is the shaft lapped or protected between the liners *yes*

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 my opinion to have **L.M.C. 2, 04** marked in the Register Book.

It is submitted that this vessel is eligible for **THE RECORD. L.M.C. 204. ELEC LIGHT.**

*Bel*  
*4.3.04*

The amount of Entry Fee ..	£ 3	When applied for.	1. 3. 04
Special .. .. .	£ 40	When received.	5/3/04
Donkey Boiler Fee .. .	£		
Travelling Expenses (if any) £			

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

Committee's Minute  
 Assigned

FRI. 4 MAR 1904

*+ L.M.C. 2, 04*

MACHINERY CERTIFICATE  
 WRITTEN.

