

# REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES.

Received at London Office 18 AUG 1904

No. in Survey held at Middlesbrough Date, first Survey 29 Jan. Last Survey 12<sup>th</sup> Aug 1904  
 Reg. Book. 1471 on the S S "Stork" (Number of Visits 45) Tons { Gross 2029 Net 1291  
 Master J. W. Dyer Built at Stockton By whom built Ropner & Son When built 1904  
 Engines made at Middlesbro By whom made Richardsons Westgarth & Co. Ld when made 1904  
 Boilers made at do By whom made ditto when made 1904  
 Registered Horse Power 257 Owners General Steam Nav. Co. Ld Port belonging to London  
 Nom. Horse Power as per Section 28 257 Is Refrigerating Machinery fitted no Is Electric Light fitted no

**ENGINES, &c.**—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 22-35-59 Length of Stroke 39 Revs. per minute as per rule 11.8 Material of screw shaft Iron  
 as fitted 12" 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 yes 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 fitting If two  
 liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 4-5 1/2"  
 Dia. of Tunnel shaft as per rule 10.6 Dia. of Crank shaft journals as per rule 11.13 Dia. of Crank pin 1 1/2" Size of Crank webs 8"x18" Dia. of thrust shaft under  
 collars 1 1/2" Dia. of screw 14'-3" Pitch of screw 14'-0" No. of blades 4 State whether moceable no Total surface 62 sq ft  
 No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 duplex Sizes of Pumps Fwd. 8"x6"x18" Ball. 6"x8"x10" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Three of 2 1/2" dia. In Holds, &c. Two of 2 1/2" in each hold  
One of 3" dia in tunnel  
 No. of bilge injections 1 sizes 6" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size yes 3"  
 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 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 New vessel Is the screw shaft tunnel watertight see ship report  
 Is it fitted with a watertight door yes worked from upper grating

**BOILERS, &c.**— (Letter for record (T)) Total Heating Surface of Boilers 4338 sq ft Is forced draft fitted no  
 No. and Description of Boilers Two: Cyl. Mult. single ended. Working Pressure 170 lb Tested by hydraulic pressure to 340 lb  
 Date of test 20.5.04 Can each boiler be worked separately yes Area of fire grate in each boiler 65 1/2 sq ft No. and Description of safety valves to  
 each boiler 2 direct spring Area of each valve 962 sq in Pressure to which they are adjusted 175 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 15" Mean dia. of boilers 15'-0" 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 D.R. lap long. seams D Butt Strap  
 Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8" rows 4" 2 rows Lap of plates or width of butt straps 18"x1 1/2"  
 Per centages of strength of longitudinal joint rivets 87 Working pressure of shell by rules 175 lbs Size of manhole in shell 17"x13"  
 plate 85.1 Size of compensating ring 8 1/2"x1 1/2" each side No. and Description of Furnaces in each boiler 3 Corrugated Material Steel Outside diameter 3'-9 3/4"  
 Length of plain part top 7'-6" bottom 7'-6" Thickness of plates crown 1 1/2" bottom 3/2" Description of longitudinal joint welded No. of strengthening rings yes  
 Working pressure of furnace by the rules 178 lb Combustion chamber plates: Material Steel Thickness: Sides 4" Back 5" Top 4" Bottom 4"  
 Pitch of stays to ditto: Sides 8 1/4"x10 1/2" Back 8 3/4"x8 3/4" Top 8 1/2"x10 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 176 lb  
 Material of stays S.S. Diameter at smallest part 2.09" Area supported by each stay 845 sq in Working pressure by rules 185 lb End plates in steam space:  
 Material Steel Thickness 1 3/32" Pitch of stays 15"x21" How are stays secured D.R. & W. Working pressure by rules 170 lb Material of stays Steel  
 Diameter at smallest part 5.90" Area supported by each stay 3157-283 sq in Working pressure by rules 173 Material of Front plates at bottom Steel  
 Thickness 7/8" Material of Lower back plate. Steel Thickness 7/8" Greatest pitch of stays 8 3/4"x15" Working pressure of plate by rules 174 lb  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2"x4 1/2" Material of tube plates Steel Thickness: Front 1 3/32" Back 27/32" Mean pitch of stays 11 1/4"  
 Pitch across wide water spaces 14 1/4" Working pressures by rules 211 lb Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 9"x1 3/4" Length as per rule 2'-5 3/4" Distance apart 10 1/2" Number and pitch of Stays in each two 8 1/2"  
 Working pressure by rules 211 Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked  
 separately yes Diameter yes Length yes Thickness of shell plates yes Material yes Description of longitudinal joint yes Diam. of rivet  
 holes yes Pitch of rivets yes Working pressure of shell by rules yes Diameter of flue yes Material of flue plates yes Thickness yes  
 If stiffened with rings yes Distance between rings yes Working pressure by rules yes End plates: Thickness yes How stayed yes  
 Working pressure of end plates yes Area of safety valves to superheater yes Are they fitted with easing gear yes

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?



**DONKEY BOILER**— No. *One* Description *Vertical with 6 cross tubes & side uptake*  
 Made at *Middlebro* By whom made *Richardsons Westgarth & Co* When made *28-6-04* Where fixed *on deck*  
 Working pressure *100 lb* Tested by hydraulic pressure to *200 lb* No. of Certificate *3248* Fire grate area *28 sq ft* Description of safety valves *direct spring*  
 No. of safety valves *2* Area of each *707* Pressure to which they are adjusted *90 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *7-0* Length *14-6* Material of shell plates *Steel* Thickness *2 7/16* Range of tensile strength *27/32* Descrip. of riveting long seams *DR lap* Dia. of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *3"*  
 Lap of plating *4 5/8* Per centage of strength of joint *69.5* Rivets *69.5* Thickness of shell crown plates *1 1/8"* Radius of do. *flat* No. of Stays to do. *7* Plates *68.75* "4 rows of solid stays" *11"* Thickness of furnace plates *1 1/16"* Description of joint *SR lap* Diameter of furnace Top *5-1"* Bottom *6-4"* Length of furnace *6-4 1/2* Stayed by *as above* Working pressure of shell by rules *111 lb*  
 Thickness of furnace crown plates *5/8"* Stayed by *as above* Working pressure of shell by rules *111 lb*  
 Working pressure of furnace by rules *124 lb* Diameter of uptake *15"* Thickness of uptake plates *5/8"* Thickness of water tubes *1/2"*

**SPARE GEAR.** State the articles supplied:— *2 Bolts & nuts for connecting rods, piston rods & main bearings & one set for couplings 1 set feed & bilge pump valves 1 set feed check valves 1 set HP & DP piston rings 12 piston bolts 1 Air pump head valve, bucket & rod. 1 screw pump shaft. Escape valve springs. Bolts & nuts.*

The foregoing is a correct description,  
 For **RICHARDSONS, WESTGARTH & Co, Ltd.** Manufacturer.

*H. Jackson*

Dates of Survey while building  
 During progress of work in shops - *Jan 29, Feb 2, 10, Mar 7, 11, 18, 21, 29, 31, Apr 7, 12, 14, 18, 21, 25, 26, 29, May 11, 17, 18, 19, 20, 25, 26*  
 During erection on board vessel - *28, 31, June 6, 7, 7, 8, 13, 20, 23, 27, 30, Jul 10, 17, 8, 21, 26, 29, Aug 2, 4, 5 - 1904*  
 Total No. of visits *45*

Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *yes*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The machinery is not placed aft.*)

*These engines and boilers have been built under special survey. The materials and workmanship are good and efficient. Small defects in the welding of two furnaces of the main boilers have been repaired by a cover patch in one case and by studding in the other. See Secretary's letter of 9<sup>th</sup> June 1904. After fitting and securing on board the machinery has been tried under steam and found satisfactory and is now in good and safe working condition and eligible in my opinion to have the record **LMC 8.04.***

*It is submitted that this vessel is eligible for THE RECORD. :- LMC 8.04*

*Bal.*  
*18.8.04*  
*18.8.04*

The amount of Entry Fee. . . £ *2* : - :  
 Special . . . . . £ *32* : *17* :  
 Donkey Boiler Fee . . . . . £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, *15.8.1904*  
 When received, *17.8.1904*

*R. D. Shilston*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 19 AUG 1904**

Assigned

*+ LMC 8.04*

MACHINERY CERTIFICATE  
 WRITTEN.



Certificate (if required) to be sent to  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)