

# REPORT ON MACHINERY.

No. 25679

Date of writing Report 19 When handed in at Local Office 3. 5. 1913 Port of Sunderland  
 Received at London Office THU. MAY. 8 - 1913  
 No. in Survey held at Sunderland Date, First Survey 8 Aug. Last Survey 10 May 1913  
 Reg. Book. on the Steel S.S. "Portwood" (Number of Visits 35)  
 Master Martin Built at Sunderland By whom built S.P. Austin & Son Ltd Gross 2141 Tons Net 1215  
 Engines made at Sunderland By whom made North Eastern Marine Eng Co Ltd when made 1913  
 Boilers made at Sunderland By whom made North Eastern Marine Eng Co Ltd when made 1913  
 Registered Horse Power 221 Owners W. Grace, Lunnon & Co. Port belonging to London  
 Nom. Horse Power as per Section 28 221 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

**ENGINES, &c.**—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks Three  
 Dia. of Cylinders 21" x 34" x 56" Length of Stroke 39" Revs. per minute 12 Dia. of Screw shaft as per rule 12.54 Material of screw shaft Steel  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liners fitted 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 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 4'-4"  
 Dia. of Tunnel shaft as per rule 10.149 Dia. of Crank shaft journals as per rule 11.02 Dia. of Crank pin 11.8" Size of Crank webs 16.2" Dia. of thrust shaft under collars 11.8" Dia. of screw 14.9" Pitch of Screw 15.6" No. of Blades 4 State whether moveable No Total surface 68 sq. ft.  
 No. of Feed pumps Two Diameter of ditto 3" Stroke 1.9" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two Diameter of ditto 3.2" Stroke 1.9" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps 1.2" x 9.2" x 10.2"; 5.2" x 3.2" x 5" No. and size of Suctions connected to both Bilge and Donkey pumps Two @ 3" dia  
 In Engine Room Three @ 3" dia In Holds, &c. One @ 3" dia in fore main well  
 after hold well 1 @ 3" dia and fitted with hot & drain pipes from sides of hold Yes  
 No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room of size Yes 3.5"  
 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  
 Dates of examination of completion of fitting of Sea Connections 8-11-13 of Stern Tube 11-11-13 Screw shaft and Propeller 11-11-13  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform

**BOILERS, &c.**—(Letter for record (5)) Manufacturers of Steel J. Spence & Sons Ltd.  
 Total Heating Surface of Boilers 2534 sq. ft. Is Forced Draft fitted No No. and Description of Boilers Two single ended  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 31-10-12 No. of Certificate 3046  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 44.2 sq. ft. No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 4.9 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 2'-6" dia. of boilers 13'-9" Length 10'-9" Material of shell plates Steel  
 Thickness 1.16" Range of tensile strength 28.2 to 32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R.  
 long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1.32" Pitch of rivets 9.3/8" Lap of plates or width of butt straps 18.2"  
 Per centages of strength of longitudinal joint rivets 86% Working pressure of shell by rules 180 lbs Size of manhole in end 16" x 12"  
 Size of compensating ring dished No. and Description of Furnaces in each boiler Three Plain Material Steel Outside diameter 3'-2.3/4"  
 Length of plain part top 45.3/4" bottom 69" Thickness of plates crown 2.3" bottom 3.2" Description of longitudinal joint Weld No. of strengthening rings None  
 Working pressure of furnace by the rules 180.5 Combustion chamber plates: Material Steel Thickness: Sides 1.3/16" Back 3/4" Top 1.3/16" Bottom 1.3/16"  
 Pitch of stays to ditto: Sides 13" x 9.3/8" Back 9.3/16" x 11.3/4" Top 13" x 9.3/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lbs  
 Material of stays Steel Area at smallest part 2.1 sq. in. Area supported by each stay 105 sq. in. Working pressure by rules 180 lbs End plates in steam space: Material Steel Thickness 1.4" Pitch of stays 22.2" x 14.3/4" How are stays secured D.N. Wash Working pressure by rules 180 lbs Material of stays Steel  
 Area at smallest part 4.06 sq. in. Area supported by each stay 400 sq. in. Working pressure by rules 183 lbs Material of Front plates at bottom Steel  
 Thickness 3/4" Material of Lower back plate Steel Thickness 1.5/16" Greatest pitch of stays 11.1/2" x 11.1/4" Working pressure of plate by rules 181 lbs  
 Diameter of tubes 3.1/4" Pitch of tubes 4.3/4" x 4.1/2" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 10.1/16"  
 Pitch across wide water spaces 11.1/2" Working pressures by rules 183 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 2 @ 8.3/4" x 1.16" Length as per rule 2'-8" Distance apart 13" Number and pitch of stays in each 2 @ 9.3/8"  
 Working pressure by rules 181 lbs 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



**VERTICAL DONKEY BOILER—** Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety Valves \_\_\_\_\_

No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with casing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of possible strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ 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 \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— Two each bolts & nuts for top & bottom ends and main bearings. One set coupling bolts. One set each valves for all pumps. One cast iron propeller. Assorted bolts nuts & rivets & sundries etc.

The foregoing is a correct description,

WILKINS EASTERN MARINE ENGINEERING CO. LTD

Manufacturer.

Geo. J. Weir  
Manager. per Fr. C.

Dates of Survey while building	During progress of work in shops - - -	1912 Aug. 8, 30 Oct. 14, 16, 29 Nov. 1, 8, 9, 14, 19, 26 Dec. 4, 6, 12, 16, 17, 20, 24, 31
	During erection on board vessel - - -	Jan. 9, 9, 14, 17, 20, 21, 22, 24 Mar. 14 Apr. 8, 14, 15, 18, 23, 30 May 1
	Total No. of visits	(35)

Is the approved plan of main boiler forwarded herewith  yes

Dates of Examination of principal parts—Cylinders 9-1-13 Slides 9-1-13 Covers 9-1-13 Pistons 16-1-13 Rods 26-11-13  
Connecting rods 26-11-13 Crank shaft 20-12-13 Thrust shaft 29-1-13 Tunnel shafts 29-1-13 Screw shaft 14-3-13 Propeller 16-1-13  
Stern tube 14-3-13 Steam pipes tested 15-4-13 Engine and boiler seatings 8-4-13 Engines holding down bolts 23-4-13  
Completion of pumping arrangements 23-4-13 - 30-4-13 Boilers fixed 23-4-13 Engines tried under steam 18-4-13

Main boiler safety valves adjusted 18-4-13 Thickness of adjusting washers Port Bl. F 3/8" A 3/8" Stand Bl. F 5/16" A 3/8"  
Material of Crank shaft Steel Identification Mark on Do. 8013-H.P.A. Material of Thrust shaft Steel Identification Mark on Do. 8262-K.H.  
Material of Tunnel shafts Steel Identification Marks on Do. 260-1-K.H. Material of Screw shafts Steel Identification Marks on Do. 5351-P.A.  
Material of Steam Pipes Mild drawn copper 4 1/2" dia x 6 lbs. Test pressure 400 lbs.

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

The Machinery of this vessel has been built under special survey, the materials and workmanship are of good quality, and the hydraulic tests of the Boilers proved satisfactory. The whole of the machinery has been securely fixed on board & tried under steam, and is in good and safe working condition, and eligible, in my opinion, to be classed, and have record **LMC 5-13** in the Register Book.

It is submitted that this vessel is eligible for **THE RECORD, + LMC 5.13.**

J.W.D. *[Signature]*  
9/5/13.

The amount of Entry Fee	£ 2 : 0 : 0	When applied for,	
Special	£ 31 : 1 : 0	7/5/13	
Donkey Boiler Fee	£ :	When received,	
Travelling Expenses (if any) £	£ :	22/5/13	

*[Signature]*  
William Butler  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. MAY 9 - 1913

Assigned

+ L.M.C. 5, 13



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Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minutes.)