

## REPORT ON MACHINERY.

No. 68144

Date of writing Report 23<sup>rd</sup> Aug. 1912, When handed in at Local Office 23 AUG 1912 Port ofNo. in Survey held at Lytham & Date, First Survey Mar 18 Last Survey 22<sup>nd</sup> Aug. 1912

Reg. Book. 43 on the Machinery of the STEEL S.C. TUG "ULLSGARTH" (Number of Visits 7) Gross 45 Tons

Master J. G. Houghton Built at Lytham By whom built Lytham S.D. &amp; S. Co., Ltd. When built 1912-8

Engines made at Lytham By whom made Lytham S.D. &amp; S. Co., Ltd. when made 1912

Boilers made at S. By whom made S. when made 1912

Registered Horse Power Owners R. &amp; J. H. Rea Port belonging to Liverpool

Nom. Horse Power as per Section 28 39 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no.

ENGINES, &c.—Description of Engines Compound Surface Condensing No. of Cylinders two No. of Cranks two

Dia. of Cylinders 12½" & 28" Length of Stroke 18" Revs. per minute 160 Dia. of Screw shaft as per rule 6.156" Material of W.I. 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 *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 2'-6"

Dia. of Tunnel shaft as per rule 5.48" Dia. of Crank shaft journals as per rule 5.76" Dia. of Crank pin 5.78" Size of Crank webs 8" x 3½" Dia. of thrust shaft under collars 5.78" Dia. of screw 6'-9" Pitch of Screw 7'-0" No. of Blades 3 State whether moveable *yes* Total surface 16 ft²

No. of Feed pumps 1 Diameter of ditto 2¼" Stroke 10" Can one be overhauled while the other is at work *yes*

No. of Bilge pumps 1 Diameter of ditto 2¼" Stroke 10" Can one be overhauled while the other is at work *yes*

No. of Donkey Engines one Sizes of Pumps 4" & 2½" x 5" duplex No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 1 @ 2" In Holds, &c. For peak 1 @ 2"; For Cabin 1 @ 2";

Stokehold 1 @ 2"; After Cabin 1 @ 2"; and after peak 1 @ 2"

No. of Bilge Injections 1 sizes 2½" Connected to ~~condenser~~ to circulating pump *yes* Is a separate Donkey Suction fitted in Engine room & size *yes* - 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 *no*

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 *main steam pipes* How are they protected *non-conducting material and steel shield plates*

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 12-7-12 of Stern Tube 12-7-12 Screw shaft and Propeller 12/7 & 30/7

Is the Screw Shaft Tunnel watertight *no* Is it fitted with a watertight door *yes* worked from *yes*

BOILERS, &amp;c.—(Letter for record S.) Manufacturers of Steel H. Barchmore &amp; Co. Ltd. &amp; Lanchester Steel Co. Ltd.

Total Heating Surface of Boilers 712 ft² Is Forced Draft fitted no No. and Description of Boilers One cylindrical multitubular Working Pressure 140 lbs. Tested by hydraulic pressure to 280 lbs. Date of test 12-7-12 No. of Certificate 1960

Can each boiler be worked separately *yes* Area of fire grate in each boiler 30 ft² No. and Description of Safety Valves to each boiler two - spring loaded Area of each valve 3.98 ft² Pressure to which they are adjusted 145 lbs. Are they fitted with easing gear *yes*Smallest distance between boilers or uptakes and bunkers or woodwork 1'-6" Mean dia. of boilers 9'-6" Length 9'-15" Material of shell plates *steel*

Thickness 2½" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R., L.

long. seams T.R., D.B.S. Diameter of rivet holes in long. seams 15/16" Pitch of rivets 7" Top of plates or width of butt straps 13¾"

Per centages of strength of longitudinal joint rivets 111.7 plate 96.6 Working pressure of shell by rules 142 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring 8" x 1" No. and Description of Furnaces in each boiler two - plain Material *steel* Outside diameter 36"Length of plain part top 5'-11" bottom 5'-6" Thickness of plates crown 3 19/32 Description of longitudinal joint *welded* No. of strengthening rings 4 x 4 1/16"Working pressure of furnace by the rules 147 Combustion chamber plates: Material *steel* Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 9/16"Pitch of stays to ditto: Sides 9" x 8" Back 8¾" x 8¾" Top 9" x 8" If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules 142.8Material of stays *steel* Diameter at smallest part 1.5" Area supported by each stay 76.56" Working pressure by rules 156 End plates in steam space:Material *steel* Thickness 13/16" Pitch of stays 15¾" x 14" How are stays secured *D.N. & L.W.* Working pressure by rules 140.8 Material of stays *steel*Diameter at smallest part 3.24 Area supported by each stay 220.5" Working pressure by rules 154 Material of Front plates at bottom *steel*Thickness 13/16" Material of Lower back plate *steel* Thickness 13/16" Greatest pitch of stays 13" x 8¾" Working pressure of plate by rules 155Diameter of tubes 3½" Pitch of tubes 4½" x 4½" Material of tube plates *steel* Thickness: Front 13/16" Back 11/16" Mean pitch of stays 9"Pitch across wide water spaces 15" Working pressures by rules 192.6 Girders to Chamber tops: Material *steel* Depth and

thickness of girder at centre 7½" x 1¼" Length as per rule 25 Distance apart 9" Number and pitch of stays in each 2 @ 8"

Working pressure by rules 183.1 Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

separately *yes* 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



# VERTICAL DONKEY BOILER—Manufacturers of Steel.

No. *none fitted* Description *none fitted*  
 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 easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_  
 Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_ Rivets \_\_\_\_\_  
 Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ 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 connecting rods top and bottom end bolts & nuts; two main bearing bolts; 1 set coupling bolts; assorted bolts & nuts; iron of various sizes; 6 condenser tubes & 12 frames; 1 set valves for air, circulating, feed, & bridge pumps; 3 boiler tube stoppers; and 1 set fire bars.*

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building  
 During progress of work in shops --  
 During erection on board vessel --  
 Total No. of visits.

*1912*  
*Mar 12 May 16 Jan 11 Jul 3. 12. 30 Aug 3.*

Is the approved plan of main boiler forwarded herewith *yes.*

Dates of Examination of principal parts—Cylinders  $12\frac{1}{2}$   $14\frac{1}{2}$   $16\frac{1}{2}$  Slides  $1\frac{1}{2}$   $1\frac{1}{2}$  Covers  $1\frac{1}{2}$   $1\frac{1}{2}$   $1\frac{1}{2}$  Pistons  $12\frac{1}{2}$   $14\frac{1}{2}$   $16\frac{1}{2}$  Rods  $1\frac{1}{2}$   $1\frac{1}{2}$   $1\frac{1}{2}$   
 Connecting rods  $1\frac{1}{2}$   $1\frac{1}{2}$   $1\frac{1}{2}$  Crank shaft and Thrust shaft  $12\frac{1}{2}$   $14\frac{1}{2}$   $16\frac{1}{2}$  Tunnel shafts  $12\frac{1}{2}$   $14\frac{1}{2}$  Screw shaft  $1\frac{1}{2}$   $1\frac{1}{2}$   $1\frac{1}{2}$  Propeller  $30\frac{1}{2}$   
 Stern tube  $12\frac{1}{2}$   $14\frac{1}{2}$  Steam pipes tested  $30\frac{1}{2}$  Engine and boiler seatings  $12\frac{1}{2}$  Engines holding down bolts  $30\frac{1}{2}$   
 Completion of pumping arrangements  $22\frac{1}{2}$  Boilers fixed  $30\frac{1}{2}$  Engines tried under steam  $22\frac{1}{2}$   
 Main boiler safety valves adjusted  $22\frac{1}{2}$  Thickness of adjusting washers *Port & Starboard  $5\frac{1}{2}$*   
 Material of Crank shaft *Steel* Identification Mark on Do. *No 674* Material of Thrust shaft *Steel* Identification Mark on Do. *No 674*  
 Material of Tunnel shafts *Steel* Identification Marks on Do. *No 674* Material of Screw shafts *W. Iron* Identification Marks on Do. *No 674*  
 Material of Steam Pipes *Stainless Copper* Test pressure *280 lbs.*

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

*The engines and boiler of this vessel have been built under special survey, the material and workmanship are of good description. The main boiler safety valves were adjusted under steam. The machinery, tried under working conditions, found satisfactory; eligible, in my opinion, to have notification of + LMC 8.12.*

*Note: The machinery of this vessel is duplicate of that fitted to the ship "STANEGARTH" (Liverpool 1<sup>st</sup> Entry Report No 64587)*

It is submitted that this vessel is eligible for THE RECORD, + LMC 8.12.

The amount of Entry Fee £ 1 : - :  
 Special £ 8 : - :  
 Donkey Boiler Fee £ : :  
 Travelling Expenses (if any) £ 4 : 2 : 4

When applied for

23 AUG 1912

When received,

20/8/12

Committee's Minute

Assigned

*L.M.C. 8.12.*

James Carraghman  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

LIVERPOOL 23 AUG 1912

MACHINERY CERTIFICATE



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