

# REPORT ON MACHINERY.

No. 25908

Received at London Office

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Date of writing Report 22.2.13 When handed in at Local Office 26.2.13 Port of Hull  
 No. in Survey held at Hull Date, First Survey Nov 15<sup>th</sup> Last Survey Feb 20<sup>th</sup> 1913  
 Reg. Book. 38 sup. on the Shut. S. K. "DIAMOND" (Number of Visits 30) Tons Gross 289  
 Master Sully Built at Sully By whom built Cochran & Sons Ltd. When built 1913  
 Engines made at Hull By whom made Messrs. Charles R. Holmes & Co. Ltd. when made 1913  
 Boilers made at Hull By whom made Messrs. Charles R. Holmes & Co. Ltd. when made 1913  
 Registered Horse Power 93 Owners Thompson Steam Traction Co. Ltd. Port belonging to Hull  
 Nom. Horse Power as per Section 28 93 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

**ENGINES, &c.**—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 13" - 22 $\frac{1}{2}$ " - 34" Length of Stroke 24" Revs. per minute 115 Dia. of Screw shaft 8" Material of screw shaft 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 38"  
 Dia. of Tunnel shaft 6.82 as per rule 4.16 Dia. of Crank shaft journals 4.16 as per rule 4.16 Dia. of Crank pin 4.16 Size of Crank webs 14 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " Dia. of thrust shaft under collars 4.16 as fitted 4.16 Dia. of screw 9-6" Pitch of Screw 10-10 $\frac{1}{2}$ " No. of Blades 4 State whether moveable No Total surface 32 sq ft  
 No. of Feed pumps 1 Diameter of ditto 2 $\frac{3}{4}$ " Stroke 14 $\frac{1}{2}$ " Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 1 Diameter of ditto 2 $\frac{3}{4}$ " Stroke 14 $\frac{1}{2}$ " Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 1 Sizes of Pumps 6" x 4 $\frac{1}{2}$ " x 6" duplex No. and size of Suctions connected to both Bilge and Donkey pumps 2 $\frac{1}{2}$ "  
 In Engine Room Two 2 $\frac{1}{2}$ " one forward & one aft In Holds, &c One 2 $\frac{1}{2}$ " fore hold, one 2 $\frac{1}{2}$ " in main hold, one 2 $\frac{1}{2}$ " in fore hold, well, one 2 $\frac{1}{2}$ " in aft hold, well. Equal suction from all bilges with discharge on deck.  
 No. of Bilge Injections 1 sizes 3 $\frac{1}{2}$ " Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room of size 3" duct  
 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 0  
 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 Hold suction How are they protected Wood casing  
 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 10.12.12 of Stern Tube 10.12.12 Screw shaft and Propeller 10.12.12  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Yes

**BOILERS, &c.**—(Letter for record S) Manufacturers of Steel The Steel Company of Scotland Ltd.  
 Total Heating Surface of Boilers 1350 sq ft Is Forced Draft fitted No No. and Description of Boilers One cyl. multi: simple m.d.d.  
 Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 3.1.13 No. of Certificate 1955  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 44.3 sq ft No. and Description of Safety Valves to each boiler Two Spring Area of each valve 4.90" Pressure to which they are adjusted 205 lbs. Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 5" Mean dia. of boilers 13-0" Length 10-6" Material of shell plates S  
 Thickness 1 $\frac{3}{16}$ " Range of tensile strength 28 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams R. P. S. long. seams R. P. S. P. Diameter of rivet holes in long. seams 1 $\frac{1}{2}$ " Pitch of rivets 8 $\frac{1}{2}$ " Top of plates or width of butt straps 18"  
 Per centages of strength of longitudinal joint rivets 89 Working pressure of shell by rules 205 lbs. Size of manhole in shell 16" x 12"  
 Size of compensating ring 1 $\frac{3}{16}$ " x 4" No. and Description of Furnaces in each boiler 3 plain Material S Outside diameter 34.625"  
 Length of plain part top 6.5" Thickness of plates crown 13" Description of longitudinal joint Weld No. of strengthening rings 0 bottom 16"  
 Working pressure of furnace by the rules 221 lbs. Combustion chamber plates: Material S Thickness: Sides 1 $\frac{1}{16}$ " Back 1 $\frac{1}{16}$ " Top 1 $\frac{1}{16}$ " Bottom 1 $\frac{1}{16}$ "  
 Pitch of stays to ditto: Sides 8 $\frac{3}{4}$ " x 8" Back 8 $\frac{3}{4}$ " x 8 $\frac{1}{4}$ " Top 8 $\frac{1}{2}$ " x 8" If stays are fitted with nuts or riveted heads No Working pressure by rules 232 lbs.  
 Material of stays S Diameter at smallest part 2.40" Area supported by each stay 890" Working pressure by rules 242 lbs. End plates in steam space: Material S Thickness 1 $\frac{1}{2}$ " Pitch of stays 19" x 19" How are stays secured R. P. S. W. Working pressure by rules 228 lbs. Material of stays S  
 Diameter at smallest part 7.50" Area supported by each stay 3420" Working pressure by rules 228 lbs. Material of Front plates at bottom S  
 Thickness 1" Material of Lower back plate S Thickness 1 $\frac{1}{16}$ " Greatest pitch of stays 13" x 8 $\frac{3}{4}$ " Working pressure of plate by rules 254 lbs.  
 Diameter of tubes 3 $\frac{1}{2}$ " Pitch of tubes 4 $\frac{7}{8}$ " x 4 $\frac{7}{8}$ " Material of tube plates S Thickness: Front 1" Back 1" Mean pitch of stays 12"  
 Pitch across wide water spaces 13 $\frac{3}{4}$ " Working pressures by rules 203 lbs. Girders to Chamber tops: Material S Depth and thickness of girder at centre 10" - 1 $\frac{3}{4}$ " Length as per rule 3-0 $\frac{1}{16}$ " Distance apart 8 $\frac{1}{2}$ " Number and pitch of stays in each 3-8"  
 Working pressure by rules 205 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

2520-669M



**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 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 \_\_\_\_\_  
 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 sets top & bottom end connecting rod bolts & nuts, five main bearing bolts & nuts, one set of coupling bolts & nuts, one set each fuel & bilge pump valves, iron of various sizes, a quantity of assorted bolts, nuts etc.*

The foregoing is a correct description,  
*p. pro* **CHARLES D. HOLMES & Co. LTD.** Manufacturer.

*Charles Holmes* DIRECTOR.

Dates of Survey while building: During progress of work in shops --- 1912: Nov 15, 19, 21, 26, 28, Dec 2, 4, 6, 10, 17, 18, 24, 30, 1913: Jan 1, 3, 8, 10.  
 During erection on board vessel --- Jan 14, 22, 25, 30, 31, Feb 5, 6, 10, 11, 14, 17, 18, 20.  
 Total No. of visits 30

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

Dates of Examination of principal parts—Cylinders 10.12.12 Slides 22.1.13 Covers 22.1.13 Pistons 8.1.13 Rods 8.1.13  
 Connecting rods 22.1.13 Crank shaft 18.12.12 Thrust shaft 10.1.13 Tunnel shafts ✓ Screw shaft 2.12.12 Propeller 2.12.12  
 Stern tube 2.12.12 Steam pipes tested 31.1.13 Engine and boiler seatings 10.12.12 Engines holding down bolts 5.2.13  
 Completion of pumping arrangements 17.2.13 Boilers fixed 11.2.13 Engines tried under steam 11.2.13  
 Main boiler safety valves adjusted 11.2.13 Thickness of adjusting washers FORWARD  $\frac{3}{8}$ " AFT  $\frac{3}{8}$ "  
 Material of Crank shaft *Steel* Identification Mark on Do. N°9847.6D Material of Thrust shaft *Steel* Identification Mark on Do. N°9847.6D  
 Material of Tunnel shafts --- Identification Marks on Do. --- Material of Screw shafts *Iron* Identification Marks on Do. N°9847.5D  
 Material of Steam Pipes *Solid drawn copper* Test pressure *400 lbs per sq. in. hydraulic*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The engines & boiler of this vessel have been examined under special survey in accordance with the Rules. The materials & workmanship are sound & good. The boiler tested by hydraulic pressure, & with the engines secured on board & tested under steam they are now in good order & safe working condition & respectfully submitted as being eligible in my opinion to be classed with the notation of 'L.M.C. 2.13' in the Register Books.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 2.13.

*E.J.S.* 27.2.13. *ARSR*

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

The amount of Entry Fee .. £ 1 : 0 :  
 Special .. £ 12 : 9 :  
 Donkey Boiler Fee .. £ : :  
 Travelling Expenses (if any) £ : 8/2 :  
 When applied for. 26-2-13  
 When received. 28/2/13  
 Committee's Minute FRI. FEB. 28. 1913  
 Assigned + L.M.C. 2.13

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

