

REPORT ON MACHINERY.

No. 26087

Received at London Office

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Date of writing Report 27 Apr 1914 When handed in at Local Office 30.4.14

Port of **SUNDERLAND.**

Date, First Survey 5th Nov. 13. Last Survey 24th April 1914.

Survey held at **SUNDERLAND.**

on the **Steel Screw Steamer "Harrovian"**

Gross Tons **4309**

Net Tons **2687**

When built **1914.**

Master **W. Williams.** Built at **Sunderland** By whom built **Bartram & Sons L^d**

when made **1914**

Engines made at **Sland.** By whom made **J. Dickinson & Sons L^d**

when made **1914.**

Boilers made at **SUNDERLAND.** By whom made **"**

Port belonging to **London**

Registered Horse Power **401**

Is Refrigerating Machinery fitted for cargo purposes **no.**

Is Electric Light fitted **yes**

Engines, &c.—Description of Engines **Tri-C P S** No. of Cylinders **3** No. of Cranks **3**

Length of Stroke **48** Revs. per minute **40** Dia. of Screw shaft as per rule **14.51** Material of screw shaft **W. I.**

Is the after end of the liner made water tight **yes**

If the liner does not fit tightly at the part **yes**

If two bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive **yes**

Length of stern bush **5ft.**

Is the shaft lapped or protected between the liners **yes**

as per rule **12.03** Dia. of Crank shaft journals as per rule **16.68** Dia. of Crank pin **13 3/4** Size of Crank webs **25x8 1/2** Dia. of thrust shaft under **13 3/4** as fitted **13 3/4**

No. of Blades **4.** State whether moceable **f** Total surface **862 sq ft**

Diameter of ditto **4** Stroke **25 1/2** Can one be overhauled while the other is at work **yes**

Diameter of ditto **4 1/2** Stroke **25 1/2** Can one be overhauled while the other is at work **yes**

Sizes of Pumps **two feeds 5x6 1/2 19x10** No. and size of Suctions connected to both Bilge and Donkey pumps **In Holds, &c. two of 3 1/2 in each**

Is a separate Donkey Suction fitted in Engine room & size **yes 4"**

Are the sluices on Engine room bulkheads always accessible **yes**

Are the roses in Engine room always accessible **yes**

Are they Valves or Cocks **both**

Are the Discharge Pipes above or below the deep water line **above**

Are the Blow Off Cocks fitted with a spigot and brass covering plate **yes**

How are they protected **none**

Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times **yes**

Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges **yes**

Is it fitted with a watertight door **yes** worked from **top platform**

Manufacturers of Steel **J. Spencer & Sons L^d**

Heating Surface of Boilers **6483 sq ft** Forced Draft fitted **no.** No. and Description of Boilers **3. S.E.**

Working Pressure **180** Tested by hydraulic pressure to **360** Date of test **23.3.1914** No. of Certificate **3200**

Can each boiler be worked separately **yes** Area of fire grate in each boiler **60 sq ft** No. and Description of Safety Valves to **see old list 2/5/14**

Area of each valve **8.5** Pressure to which they are adjusted **185 lbs** Are they fitted with easing gear **yes**

Least distance between boilers or uptakes and bunkers or woodwork **4ft.** Mean dia. of boilers **15ft** Length **11'3"** Material of shell plates **S**

Range of tensile strength **28 1/2 - 32** Are the shell plates welded or flanged **no.** Descrip. of riveting: cir. seams **2.7 lap**

Diameter of rivet holes in long. seams **1 5/16** Pitch of rivets **8 1/8** Length of plates or width of butt straps **1'7 1/4**

Percentages of strength of longitudinal joint **92.4** Working pressure of shell by rules **188 lbs** Size of manhole in shell **16" x 12"**

Thickness of plates **35** Description of longitudinal joint **weld** No. of strengthening rings **—**

Working pressure of furnace by the rules **185** Combustion chamber plates: Material **S** Thickness: Sides **5/8"** Back **7/8"** Top **5/8"** Bottom **7/8"**

Material of stays **S** Diameter at smallest part **1.35** Area supported by each stay **64** Working pressure by rules **181 1/2** End plates in steam space: **S**

Thickness **14** Pitch of stays **17" 20"** How are stays secured **2 nuts** Working pressure by rules **209** Material of stays **S**

Diameter at smallest part **3.16** Area supported by each stay **348.5** Working pressure by rules **235** Material of Front plates at bottom **S**

Material of Lower back plate **S** Thickness **1/8** Greatest pitch of stays **14 3/8"** Working pressure of plate by rules **188 1/2**

Diameter of tubes **3 1/2** Pitch of tubes **4 1/2 x 4 1/2** Material of tube plates **S** Thickness: Front **1/8"** Back **1/8"** Mean pitch of stays **9 11/4"**

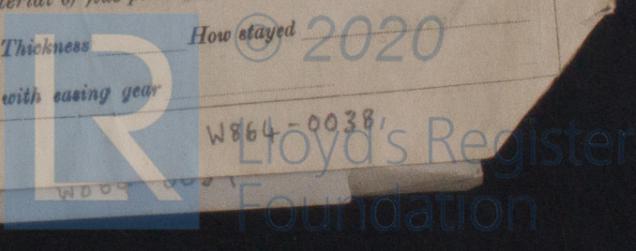
Pitch across wide water spaces **13 1/4** Working pressures by rules **181** Girders to Chamber tops: Material **S** Depth and thickness of girder at centre **4 3/8 x 1 1/2** Length as per rule **2.7 3/8** Distance apart **8"** Number and pitch of stays in each **3 @ 8"**

Working pressure by rules **198** Superheater or Steam chest; how connected to boiler **Can the superheater be shut off and the boiler worked separately** Description of longitudinal joint **Diam. of rivet**

Material of flue plates **S** Thickness **—** How stayed **—** Are they fitted with easing gear **—**

If stiffened with rings **—** Distance between rings **—** Working pressure by rules **—** End plates: Thickness **—** How stayed **—** Are they fitted with easing gear **—**

Working pressure of end plates **—** Area of safety valves to superheater **—**



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____ When made _____ Where fixed _____

Made at _____ By whom made _____

Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of _____

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:— Propeller & Shaft. Set of top & bottom end bolts & nuts, set of coupling bolts, two holding down bolts & nuts, feed pump valves, several parts of iron, assorted nuts bolts, tubes for Con and several boiler tubes.

The foregoing is a correct description,
John Dickinson & Sons, Limited. Manufacturer.

Dates of Survey while building	During progress of work in shops --	1913. Nov. 5. 10. 22. Dec. 10. 11. 15. 17. 19. Jan. 6. 7. 14. 15. 19. 22.
	During erection on board vessel --	6. 9. 20. 26. 27. Mar. 3. 5. 6. 9. 11. 13. 23. Apr. 3. 4. 24.
	Total No. of visits	31.

Is the approved plan of main boiler forwarded herewith _____

_____ " " " donkey " " " _____

Dates of Examination of principal parts—Cylinders 27. 2. 13 Slides 21. 1. 13 Covers 20. 2. 13 Pistons 20. 2. 13 Rods 20. 2. 13

Connecting rods 27. 1. 13 Crank shaft 20. 2. 13 Thrust shaft 20. 2. 13 Tunnel shafts 6. 2. 13 Screw shaft 27. 2. 13 Propeller 27. 2. 13

Stern tube 27. 2. 13 Steam pipes tested 3. 4. 13 Engine and boiler seatings 5. 8. 13 Engines holding down bolts 8. 4. 13

Completion of pumping arrangements 8. 4. 13 Boilers fixed 3. 4. 13 Engines tried under steam 8. 4. 13

Main boiler safety valves adjusted 8. 4. 13 Thickness of adjusting washers $1/16$ & $3/16$ CD $5/16$ & $3/16$ SD $1/8$ & $3/16$

Material of Crank shaft D Identification Mark on Do. B.J.T.F Material of Thrust shaft B Identification Mark on Do. B.J.T.F

Material of Tunnel shafts S Identification Marks on Do. B.J.T.F Material of Screw shafts W.S. Identification Marks on Do. B.J.T.F

Material of Steam Pipes C.V Test pressure 400 lbs

General Remarks (State quality of workmanship, opinions as to class, &c. Engines & Boilers built in Survey: Material & workmanship good. Engines & boilers examined under full steam & found satisfactory. It is submitted that the record of L.M.C. 4. — 1914 be inserted in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 4. 14.

J.P.R. *J.W.D.* 4/5/14

J. J. Findlay
 Engineer Surveyor to Lloyd's Register of British & Foreign Ships

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

Committee's Minute
 Assigned
 TUE. MAY 5—1914
 + L.M.C. 4, 14

MACHINERY CERTIFICATE WRITTEN.