

REPORT ON MACHINERY.

No. 26087

Received at London Office

FRI. MAY 1-1914

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 24 April 1914.

in Survey held at **SUNDERLAND.**

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

Gross 4309
Net 2687
When built 1914.

Master **W. Williams.** Built at **Sunderland** By whom built **Bartham & 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 **J. Mathias & Sons**

Port belonging to **London**

Registered Horse Power

Is Refrigerating Machinery fitted for cargo purposes **no.** Is Electric Light fitted **yes**

Horse Power as per Section 28 **401**

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 **14 5/8** Material of screw shaft **10 9**

Is the after end of the liner made water tight **yes** If the liner does not fit tightly at the part

eller boss **yes** If the liner is in more than one length are the joints burned **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 **5 ft.**

Is the shaft lapped or protected between the liners **yes** Dia. of Crank pin **13 3/4** Size of Crank webs **25 x 8 1/2** Dia. of thrust shaft under

el shaft **13 3/8** Dia. of Crank shaft journals **13 3/4** No. of Blades **4** State whether moveable **f** Total surface **862 sq**

Di. of screw **17 1/2** Pitch of Screw **17 ft** Can one be overhauled while the other is at work **yes**

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

ge pumps **2** Diameter of ditto **4 1/2** Stroke **25 1/2** No. and size of Suctions connected to both Bilge and Donkey pumps

Donkey Engines **3** Sizes of Pumps **two feeds 5 x 6 1/2 19 x 10** In Holds, &c. **two of 3 1/2 in each**

Room **30 x 3 1/2** Is a separate Donkey Suction fitted in Engine room & size **yes 4"**

el **2 1/2** Connected to condenser, or to circulating pump **CP** Are the sluices on Engine room bulkheads always accessible **yes**

ge Injections **1** sizes **5 1/2** Are the roses in Engine room always accessible **yes** Are the valves on Engine room bulkheads always accessible **yes**

Are the bilge suction pipes fitted with roses **yes** Are they Valves or Cocks **both**

connections with the sea direct on the skin of the ship **yes** Are the Discharge Pipes above or below the deep water line **above**

fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates **yes** Are the Blow Off Cocks fitted with a spigot and brass covering plate **yes**

each fitted with a Discharge Valve always accessible on the plating of the vessel **yes** How are they protected **yes**

pipes are carried through the bunkers **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**

of examination of completion of fitting of Sea Connections **3. 3. 13** of Stern Tube **8 Apr.** Screw shaft and Propeller **8. 4. 13**

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

ERS, &c.—(Letter for record **B**) 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.**

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

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

oiler **two Spring** Area of each valve **8. 3** Pressure to which they are adjusted **185 lbs** Are they fitted with easing gear **yes**

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

ness **13 1/2** Range of tensile strength **28 1/2-32** Are the shell plates welded or flanged **no** Descrip. of riveting: cir. seams **2 x lap**

seams **2 x 2 b. strap** Diameter of rivet holes in long. seams **1 5/16** Pitch of rivets **8 1/2** Lap of plates or width of butt straps **1 7/8**

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

of compensating ring **8 1/2 x 1 1/2** No. and Description of Furnaces in each boiler **3 Cornug 20** Material **S** Outside diameter **3'-10"**

th of plain part **3 1/4** Thickness of plates **35** Description of longitudinal joint **weld** No. of strengthening rings **—**

king pressure of furnace by the rules **185** Combustion chamber plates: Material **S** Thickness: Sides **5/8** Back **7/8** Top **5/8** Bottom **3/8**

h of stays to ditto: Sides **8" x 8"** Back **8" x 8"** Top **8" x 8"** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **211 lbs**

terial 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

terial **S** Thickness **1 1/4** Pitch of stays **17" 202** How are stays secured **2 nuts** Working pressure by rules **209** Material of stays **S**

Diameter at smallest part **3 1/6** Area supported by each stay **34 8 1/2** Working pressure by rules **235** Material of Front plates at bottom **S**

Thickness **1 1/6** Material of Lower back plate **S** Thickness **1 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 1/2** Back **1 1/8** Mean pitch of stays **9 11 1/4**

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 1/2** 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 **—** 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 **—**

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VERTICAL DONKEY BOILER—

Manufacturers of Steel

No.	Description	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	Date of adjustment
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
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 --	During erection on board vessel --	Total No. of visits
1913. Nov. 5. 10. 22. Dec. 10. 11. 15. 17. 19. Jan. 6. 7. 14. 15. 19. 22.	6. 9. 20. 26. 27.	Mar. 3. 5. 6. 9. 11. 13. 23. Apr. 3. 4. 24.	31.

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	Engines tried under steam	8. 4. 13		
Completion of pumping arrangements	8. 4. 13	Boilers fixed	8. 4. 13	Engines tried under steam	8. 4. 13						
Main boiler safety valves adjusted	8. 4. 13	Thickness of adjusting washers	1/8" 5/16" 3/8" 1/2" 5/8" 3/4" 1" 1 1/8" 1 1/4" 1 1/2" 1 3/4" 2" 2 1/4" 2 1/2" 2 3/4" 3" 3 1/4" 3 1/2" 3 3/4" 4" 4 1/4" 4 1/2" 4 3/4" 5" 5 1/4" 5 1/2" 5 3/4" 6" 6 1/4" 6 1/2" 6 3/4" 7" 7 1/4" 7 1/2" 7 3/4" 8" 8 1/4" 8 1/2" 8 3/4" 9" 9 1/4" 9 1/2" 9 3/4" 10" 10 1/4" 10 1/2" 10 3/4" 11" 11 1/4" 11 1/2" 11 3/4" 12" 12 1/4" 12 1/2" 12 3/4" 13" 13 1/4" 13 1/2" 13 3/4" 14" 14 1/4" 14 1/2" 14 3/4" 15" 15 1/4" 15 1/2" 15 3/4" 16" 16 1/4" 16 1/2" 16 3/4" 17" 17 1/4" 17 1/2" 17 3/4" 18" 18 1/4" 18 1/2" 18 3/4" 19" 19 1/4" 19 1/2" 19 3/4" 20" 20 1/4" 20 1/2" 20 3/4" 21" 21 1/4" 21 1/2" 21 3/4" 22" 22 1/4" 22 1/2" 22 3/4" 23" 23 1/4" 23 1/2" 23 3/4" 24" 24 1/4" 24 1/2" 24 3/4" 25" 25 1/4" 25 1/2" 25 3/4" 26" 26 1/4" 26 1/2" 26 3/4" 27" 27 1/4" 27 1/2" 27 3/4" 28" 28 1/4" 28 1/2" 28 3/4" 29" 29 1/4" 29 1/2" 29 3/4" 30" 30 1/4" 30 1/2" 30 3/4" 31" 31 1/4" 31 1/2" 31 3/4" 32" 32 1/4" 32 1/2" 32 3/4" 33" 33 1/4" 33 1/2" 33 3/4" 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