

# REPORT ON MACHINERY.

No. 25859  
FRI. OCT. 3-1913

Received at London Office

Date of writing Report 19 When handed in at Local Office 2.10.13 Port of **SUNDERLAND**

No. in Survey held at **SUNDERLAND** Date, First Survey 11 April Last Survey 27<sup>th</sup> Sep 1913  
Reg. Book. on the **Steel S/S "Helmloch"** (Number of Visits 31) Gross 4160  
Master **Yedford** Built at **Sunderland** By whom built **W. Pickersgill & Sons** when built 1913  
Engines made at **Iland** By whom made **J. Dickinson & Sons Ltd** when made 1913  
Boilers made at " By whom made - do - when made 1913  
Registered Horse Power Owners **Strath & Co. Ltd** Port belonging to **Cardiff**  
Nom. Horse Power as per Section 28 **395** Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **yes**

**ENGINES, &c.**—Description of Engines **Tri. C.P.A.** No. of Cylinders **3** No. of Cranks **3**  
Dia. of Cylinders **26, 42, 71** Length of Stroke **48** Revs. per minute **70** Dia. of Screw shaft as per rule **14.5** Material of screw shaft **W. 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 **✓** 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 **✓** If two  
liners are fitted, is the shaft lapped or protected between the liners **✓** Length of stern bush **5 ft**  
Dia. of Tunnel shaft as per rule **12.98** Dia. of Crank shaft journals as per rule **13.63** Dia. of Crank pin **13 3/4** Size of Crank webs **patent** Dia. of thrust shaft under  
collars **13 3/4** Dia. of screw **17 6** Pitch of Screw **16 6** No. of Blades **four** State whether moveable **no** Total surface **86 1/2 sq**  
No. of Feed pumps **2** Diameter of ditto **4** Stroke **25 1/2** Can one be overhauled while the other is at work **yes**  
No. of Bilge pumps **2** Diameter of ditto **4 1/2** Stroke **25 1/2** Can one be overhauled while the other is at work **yes**  
No. of Donkey Engines **3** Sizes of Pumps **Ballast 10 x 10, 2 feeds, duplex 5 x 6** No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room **four 32"** In Holds, &c. **two of 32" in each hold, tunnel 22"**  
No. of Bilge Injections **1** sizes **5 1/2** Connected to condenser, or to circulating pump **CP** Is a separate Donkey Suction fitted in Engine room & size **yes 4"**  
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 **✓**  
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 **✓**  
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 **4.9.13** of Stern Tube **10.9.13** Screw shaft and Propeller **10.9.13**  
Is the Screw Shaft Tunnel watertight **yes** Is it fitted with a watertight door **yes** worked from **top platform**

**BOILERS, &c.**—(Letter for record **S**) Manufacturers of Steel **J. Spencer & Sons**  
Total Heating Surface of Boilers **6312 sq ft** Is Forced Draft fitted **no** No. and Description of Boilers **two ordinary type 2.S.B.**  
Working Pressure **180 lbs** Tested by hydraulic pressure to **360** Date of test **6.9.13** No. of Certificate **3145**  
Can each boiler be worked separately **yes** Area of fire grate in each boiler **85 sq** No. and Description of Safety Valves to  
each boiler **two Spring** Area of each valve **9.6 sq** Pressure to which they are adjusted **185** Are they fitted with easing gear **yes**  
Smallest distance between boilers or uptakes and bunkers or woodwork **1.6** Mean dia. of boilers **17.6** Length **11.10** Material of shell plates **Steel**  
Thickness **1 1/2** Range of tensile strength **28 1/2 - 32** Are the shell plates welded or flanged **no** Descrip. of riveting: cir. seams **D. r lap**  
long. seams **J.R.D.S** Diameter of rivet holes in long. seams **1 1/16** Pitch of rivets **9 1/16** Lap of plates or width of butt straps **1 9/8**  
Per centages of strength of longitudinal joint rivets **92.72** Working pressure of shell by rules **181 lbs** Size of manhole in shell **16" x 12"**  
plate **85.16** Size of compensating ring **8 7/8, 1 1/2** No. and Description of Furnaces in each boiler **4. Corrugated** Material **S** Outside diameter **3' 11"**  
Length of plain part top **9'** Thickness of plates orion **9'** Description of longitudinal joint **weld** No. of strengthening rings **—**  
bottom **16'** Working pressure of furnace by the rules **185** Combustion chamber plates: Material **S** Thickness: Sides **7/16** Back **7/16** Top **7/16** Bottom **7/8**  
Pitch of stays to ditto: Sides **9 x 10'** Back **9 x 10'** Top **9 x 9'** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **181**  
Material of stays **S** Diameter at smallest part **1.6"** Area supported by each stay **90"** Working pressure by rules **203** End plates in steam space  
Material **S** Thickness **1 3/32** Pitch of stays **23 x 17 7/8** How are stays secured **d. nuts** Working pressure by rules **183** Material of stays **S**  
Diameter at smallest part **3' 03"** Area supported by each stay **411"** Working pressure by rules **183** Material of Front plates at bottom **S**  
Thickness **7/8** Material of Lower back plate **S** Thickness **27/32** Greatest pitch of stays **14 1/2 x 10'** Working pressure of plate by rules **298**  
Diameter of tubes **3 1/4"** Pitch of tubes **4 1/2 x 4 1/2** Material of tube plates **S** Thickness: Front **1 1/32 + 7/8** Back **7/8** Mean pitch of stays **9-9**  
Pitch across wide water spaces **1' 1 1/4"** Working pressures by rules **335** Girders to Chamber tops: Material **S** Depth and  
thickness of girder at centre **7 1/2 x 1 1/4 (two)** length as per rule **2' 11 3/8** Distance apart **9"** Number and pitch of stays in each **3 @ 9"**  
Working pressure by rules **182** 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

**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
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 tensile strength	Descrip. of riveting long. seams	Rivets Plates
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint
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 & propeller shaft. Set top & bottom end bolts & nuts. Set main bearing bolts & nuts & bolts. Set coupling bolts & nuts. Set feed and bilge pump valves. Two check valves, feed, escape & safety valve springs. nuts, bolts & assorted iron*

The foregoing is a correct description,

*W. J. Tindley* Manufacturer.

Dates of Survey while building	During progress of work in shops	1913. Apr. 11. 30. May 2. 6. 8. June 2. Jul 10. 24. 25 Aug 5. 6. 13. 14. 21. 22. 27. 30.
	During erection on board vessel	28. 29. Sep. 1. 2. 4. 5. 6. 10. 15. 18. 20. 22. 25. 27.
Total No. of visits		(31)

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

Dates of Examination of principal parts—	Cylinders	14. 8. 13	Slides	10. 7. 13	Covers	10. 7. 13	Pistons	27. 8. 13	Rods	27. 8. 13	
Connecting rods	21. 8. 13	Crank shaft	1. 9. 13	Thrust shaft	1. 9. 13	Tunnel shafts	1. 9. 13	Screw shaft	4. 9. 13	Propeller	4. 9. 13
Stern tube	4. 9. 13	Steam pipes tested	17. 9. 13	Engine and boiler seatings	10. 9. 13	Engines holding down bolts	10. 9. 13				
Completion of pumping arrangements	20. 9. 13	Boilers fixed	18. 9. 13	Engines tried under steam	20. 9. 13						
Main boiler safety valves adjusted	20. 9. 13	Thickness of adjusting washers	P.B. f 13/32 a 13/32 S.B. f 13/32 a 1/2 bare								
Material of Crank shaft	Steel	Identification Mark on Do.	W.C. H.K.	Material of Thrust shaft	Steel	Identification Mark on Do.	M.H.				
Material of Tunnel shafts	Steel	Identification Marks on Do.	H.K. N.B. K.K.	Material of Screw shafts	W. Iron	Identification Marks on Do.	J.V.K.				
Material of Steam Pipes	Copper	5" 5 w.t.	Test pressure	400 lbs.							

**General Remarks** (State quality of workmanship, opinions as to class, &c. *Machinery & boilers built under special survey. Materials and workmanship good. Engines & boilers examined under full steam & found satisfactory. In my opinion this vessel is eligible for the record of R.L.M.C. 9/1913 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 9. 13.

*J.W.T.*  
 4/10/13.  
*S. J. Tindley*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee	£ 3	When applied for.	2. 11. 1913
Special	£ 39. 15		
Donkey Boiler Fee	£	When received.	31/10/13
Travelling Expenses (if any)	£		

Committee's Minute TUE. OCT. 7-1913

Assigned

*L.M.C. 9. 13*



Certificate (if required) to be sent to...