

# REPORT ON MACHINERY.

No. 26266

Received at London Office

Date of writing Report 19 When handed in at Local Office 31. OCT. 1914 Port of Sunderland MON. NOV. -2. 1914

No. in Survey held at SUNDERLAND. Date, First Survey 3 March Last Survey 28 Octbr. 1914  
Reg. Book. on the *Steel S/S "Exford"* (Number of Visits 43)

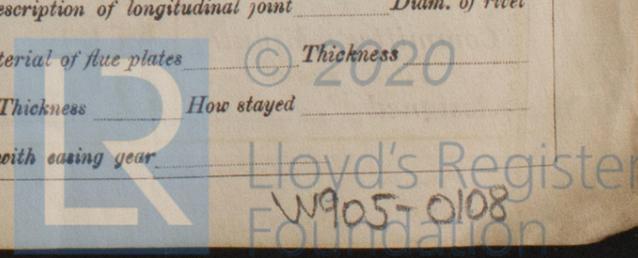
Master *W. Hughes* Built at *Sunderland* By whom built *Bartram & Sons Ltd* Tons } Gross 4503  
Net 2839  
When built 1914

Engines made at *S. land* By whom made *J. Dickinson & Sons Ltd* when made 1914  
Boilers made at " By whom made " when made 1914

Registered Horse Power Owners *Salem S. S. Co. Ltd. (W. J. Salem & Co.)* Port belonging to *Cardiff*  
Nom. Horse Power as per Section 28 453 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 *2 1/2, 4 1/2, 7 1/2* Length of Stroke *48* Revs. per minute *70* Dia. of Screw shaft as per rule *14.89* Material of *W.S.*  
 as fitted *15* screw shaft) 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 *13.5* Dia. of Crank shaft journals as per rule *1.4 1/8* Dia. of Crank pin *1 1/2* Size of Crank webs *9 1/2 x 2 1/2* Dia. of thrust shaft under  
 collars *1 1/4* Dia. of screw *1 1/2* Pitch of Screw *1 1/2* No. of Blades 4 State whether moccable *f* Total surface *99 sq*  
 No. of Feed pumps *2* Weirs Diameter of ditto *7* Stroke *24* Can one be overhauled while the other is at work *yes*  
 No. of Bilge pumps *2* Diameter of ditto *5* Stroke *24* Can one be overhauled while the other is at work *yes*  
 No. of Donkey Engines *3* Sizes of Pumps *B 11 x 10. two feed 5 x 6 1/2* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *four 3 1/2* In Holds, &c. *two 3 1/2 in each. tunnel 2 1/2*  
 No. of Bilge Injections *1* sizes *7* Connected to condenser, or to circulating pump *C.P.* 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 *27. 8. 14* of Stern Tube *11. 9. 14* Screw shaft and Propeller *11. 9. 14*  
 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 Ltd*  
 Total Heating Surface of Boilers *7379 sq* Is Forced Draft fitted *no* No. and Description of Boilers *3 ordinary type*  
 Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *31. 7. 14* No. of Certificate *3236 f*  
 Can each boiler be worked separately *yes* Area of fire grate in each boiler *65 sq* No. and Description of Safety Valves to  
 each boiler *two Spring* Area of each valve *8. 3* Pressure to which they are adjusted *185* Are they fitted with easing gear *yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *about 2 ft* Mean dia. of boilers *15. 7 3/4* Length *11. 9* Material of shell plates *S*  
 Thickness *1 1/32* Range of tensile strength *28 1/2 - 32* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *a. 7. lat*  
 long. seams *T.R. d. butt* Diameter of rivet holes in long. seams *1 3/8* Pitch of rivets *9 1/6* Lap of plates or width of butt straps *1. 8 1/8*  
 Per centages of strength of longitudinal joint rivets *92. 63* Working pressure of shell by rules *189* Size of manhole in shell *16" x 12"*  
 plate *85. 23* Size of compensating ring *8 3/4 x 19 1/2* No. and Description of Furnaces in each boiler *3 Corrugated* Material *S* Outside diameter *4. 2*  
 Length of plain part top *9* Thickness of plates crown *1 1/32* Description of longitudinal joint *weld* No. of strengthening rings *✓*  
 bottom Working pressure of furnace by the rules *189* Combustion chamber plates: Material *S* Thickness: Sides *7/8* Back *5/8* Top *7/8* Bottom *7/8*  
 Pitch of stays to ditto: Sides *8 x 8* Back *8 1/2 x 8* Top *8 x 8* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *211*  
 Material of stays *S* Diameter at smallest part *1. 35 1/2* Area supported by each stay *64* Working pressure by rules *182* End plates in steam space:  
 Material *S* Thickness *1 1/4* Pitch of stays *17 x 20* How are stays secured *a. nuts* Working pressure by rules *209* Material of stays *S*  
 Diameter at smallest part *3 1/6* Area supported by each stay *348 1/2* Working pressure by rules *234* Material of Front plates at bottom *S*  
 Thickness *7/8* Material of Lower back plate *S* Thickness *7/8* Greatest pitch of stays *14 3/4 x 8* Working pressure of plate by rules *187 1/2*  
 Diameter of tubes *3 1/4* Pitch of tubes *4 1/2 x 4 1/2* Material of tube plates *S* Thickness: Front *7/8* Back *7/8* Mean pitch of stays *9*  
 Pitch across wide water spaces *1. 1 1/4* Working pressures by rules *302* Girders to Chamber tops: Material *S* Depth and  
 thickness of girder at centre *7 3/4 x 1 1/2* Length as per rule *2. 9 1/2* Distance apart *8* Number and pitch of stays in each *3 @ 8*  
 Working pressure by rules *187* 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	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:— Propeller & propeller shaft. Set Coupling bolts & nuts. five main bearing bolts & nuts. 2 top end bolts & nuts. 2 bottom end bolts & nuts. 1 set bilge pump valves. 1 set valves for keels pump. 4 main & donkey check valves. 2 sets air pump valves. 3 sets Air pump valves feed & donkey valves 2 S.V. Springs & 2 escape valve Springs assorted iron nuts & bolts.

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

Dates of Survey while building	During progress of work in shops --	1914. Mar. 2. May 8. 12. 13. 18. 20. 22. 25. 27. 28. 29. June 4. 8. 15. 19. 25. 30. Jul. 2. 7. 8. 13. 16. 20. 29.
	During erection on board vessel ---	Aug. 7. 14. 27. Sept. 2. 4. 5. 9. 11. 15. 17. 18. 23. 30. Oct. 1. 7. 9. 13. 20. 28.
Total No. of visits		(42)

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

Dates of Examination of principal parts—Cylinders	15.6	Slides	8.6	Covers	15.6	Pistons	8.6	Rods	8.6	
Connecting rods	15.6	Crank shaft	2.9	Thrust shaft	2.9	Tunnel shafts	2.9	Screw shaft	9.9	
Stern tube	9.9	Steam pipes tested	15.9	Engine and boiler seatings	11.9	Engines holding down bolts	30.9			
Completion of pumping arrangements	23.9	Boilers fixed	30.9	Engines tried under steam	23.9					
Main boiler safety valves adjusted	23.9	Thickness of adjusting washers	PB 1/2" 1/32. CR 1/2" 1/32. SB 1/2" 1/32.							
Material of Crank shaft	IS	Identification Mark on Do.	WS. 3.14	Material of Thrust shaft	IS.	Identification Mark on Do.	FR. 46.6	iler No.		
Material of Tunnel shafts	IS.	Identification Marks on Do.	FR. 4.5.55	Material of Screw shafts	W.S.	Identification Marks on Do.	MR. 626.	This rec		
Material of Steam Pipes	Copper	Test pressure	370							

**General Remarks** (State quality of workmanship, opinions as to class, &c. Machinery and boilers built under survey. materials and workmanship good. Engines and boilers examined under full steam & found satisfactory. It is submitted that this vessel is eligible for the record in the Register Book of L.M.C. 10/1914

It is submitted that this vessel is eligible for THE RECORD. + LMC 10.14.

The amount of Entry Fee	£ 3: : : When applied for,
Special	£ 42. 13: : : 31. OCT. 1914
Donkey Boiler Fee	£ : : : When received,
Travelling Expenses (if any)	£ : : : 5/11/14

Committee's Minute TUE NOV-3. 1914  
 Assigned + Lmb 1014

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



WEB-FRAM  
 No  
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 No  
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 No  
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 State actual  
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 Write "Aiming or Shelter Deck" or "Sheer Strake" opposite its corresponding letter.  
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