

Rpt. 4.

## REPORT ON MACHINERY.

No. 25775  
WED. JUL. 30. 1913

Received at London Office

Date of writing Report 26-7-1913 When handed in at Local Office 26-7-1913 Port of Sunderland

No. in Survey held at Sunderland  
Reg. Book.

Date, First Survey 25-7-1913 Last Survey 25-7-1913

Supp 5 on the steel S/S "LUCELLUM".

(Number of Visits)

Tons { Gross 5180 5784  
Net 3220 3233

Master Murray Built at Sunderland By whom built Sir James Laing &amp; Sons Ltd (S/N 642) When built 1913

Engines made at Sunderland By whom made George Black Ltd (Nº 983) when made 1913

Boilers made at Sunderland By whom made George Black Ltd (Nº 983) when made 1913

Registered Horse Power Owners H.E. Moss &amp; Co (Mps) Port belonging to Liverpool

Nom. Horse Power as per Section 28 471 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3  
Dia. of Cylinders 26.44.72 Length of Stroke 48 Revs. per minute 40 Dia. of Screw shaft as per rule 14.65" Material of screw shaft 15 1/8" steel  
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'-0 1/2"  
Dia. of Tunnel shaft as per rule 13.1" Dia. of Crank shaft journals as per rule 13.75" Dia. of Crank pin 14 1/4" Size of Crank webs 21 1/4 x 9" Dia. of thrust shaft under  
collars 14 3/8" Dia. of screw 17'-9" Pitch of Screw 16'-3" No. of Blades 4 State whether moveable no Total surface 95 ft²  
No. of Feed pumps 2 Diameter of ditto 7" (9 1/2" stroke) Stroke 18" Can one be overhauled while the other is at work yes  
No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 26" Can one be overhauled while the other is at work yes  
No. of Donkey Engines 3 Sizes of Pumps 6 1/2 x 6 1/2 7 1/2 x 5 1/2 9 1/2 x 10 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Three @ 3 1/2" and four @ 2" in oil well (fuel pump) In Holds, &c. Fore peak flat - 2 @ 2 1/2" cargo hold 2 @ 2 1/2"  
connected to ballast pump in cargo hold only. 2 @ 2 1/2" in pump room connected to cargo pumps only.  
No. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump O.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 none  
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 6-6-13 of Stern Tube 20-5-13 Screw shaft and Propeller 18-6-13  
Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door machy aft worked from

BOILERS, &c.—(Letter for record (S)) Manufacturers of Steel John Spence & Sons Ltd  
Total Heating Surface of Boilers 6400 ft² Is Forced Draft fitted yes No. and Description of Boilers Two single ended marine  
Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 15-5-13 No. of Certificate 3112  
Can each boiler be worked separately yes Area of fire grate in each boiler 81 ft² No. and Description of Safety Valves to  
each boiler two direct spring Area of each valve 16.80" Pressure to which they are adjusted 185 Are they fitted with easing gear yes  
Smallest distance between boilers or uptakes and bunkers on deck 1'-11" Mean dia. of boilers 17'-3" Length 12'-0" Material of shell plates steel  
Thickness 1 1/8" Range of tensile strength 29-32.38 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams AR  
long. seams WBS. TR Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 20 1/8"  
Per centages of strength of longitudinal joint rivets 88.6 Working pressure of shell by rules 191 Size of manhole in end 16 x 13  
Size of compensating ring flanged No. and Description of Furnaces in each boiler 4 Wighton bon Material steel Outside diameter 3'-10"  
Length of plain part top Thickness of plates crown 3 3/4" Description of longitudinal joint welded No. of strengthening rings  
bottom 6 1/4"  
Working pressure of furnace by the rules 212 Combustion chamber plates: Material steel Thickness: Sides 13/16 Back 5/8 Top 5/8 Bottom 13/16  
Pitch of stays to ditto: Sides 8 1/4 x 8 Back 8 x 8 Top 8 x 7 1/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 211  
Material of stays steel Diameter at smallest part 1.450" Area supported by each stay 66 1/4" Working pressure by rules 180 End plates in steam space:  
Material steel Thickness 1 1/2" Pitch of stays 21 x 2 1/4 How are stays secured W.N. Working pressure by rules 206 Material of stays steel  
Diameter at smallest part 1.071" Area supported by each stay 39 1/2" Working pressure by rules 184 Material of Front plates at bottom steel  
Thickness 1 1/2" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 18 x 8 Working pressure of plate by rules 204  
Diameter of tubes 2 1/2" Pitch of tubes 3 3/4 x 3 5/8 Material of tube plates steel Thickness: Front 3 1/2" Back 3 1/4 Mean pitch of stays 9 1/4  
Pitch across wide water spaces 13 1/2 Working pressures by rules 197 Girders to Chamber tops: Material steel Depth and  
thickness of girder at centre 20 8 9/16 x 7 1/8 Length as per rule 36 Distance apart 7 7/8 Number and pitch of stays in each 3 @ 8"  
Working pressure by rules 180 Superheater or Steam chest; how connected to boiler none 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

3537-0190



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 connecting rod top and bottom end bolts and nuts, two main bearing bolts, one set of coupling bolts, one set of feed and bilge pump valves, iron and bolts of various sizes, one set of air pump valves,  $\frac{1}{2}$  set of circulating pump valves, one tail shaft and propeller, one eccentric strap, one valve spindle, one pair of top and bottom end bearings.

The foregoing is a correct description,

FOR GEORGE CLARK, LIMITED

*Snowball*

Manufacturers of Main Engines Boilers

Dates of Survey while building	During progress of work in shops --	1912. Aug 9. 28. Nov 13. 19. 27. Dec. 5. 10. 19. Jan 10. 20. Feb 14. 10. Mar. 3. 4. 12. 19. 26. 28
	During erection on board vessel ---	Apr. 1. 17. 23. 24. May 2. 6. 9. 15. 16. 20. 30. June 6. 18. 19. 20. 26. 28. July 1. 3. 4. 23. 24. 25
	Total No. of visits	41

Is the approved plan of main boiler forwarded herewith **yes**

" " " donkey " " " **yes**

**Dates of Examination of principal parts**—Cylinders 12-3-13 Slides 1-4-13 Covers 18-3-13 Pistons 19-12-12 Rods 26-3-13

Connecting rods 30-5-13 Crank shaft 24-11-12 Thrust shaft 10-12-12 Tunnel shafts none Screw shaft 6-5-13 Propeller 17-4-13

Stern tube 24-4-13 Steam pipes tested 3-7-13 Engine and boiler seatings 20-5-13 Engines holding down bolts 1-7-13

Completion of pumping arrangements 24-7-13 Boilers fixed 1-7-13 Engines tried under steam 25-7-13

Main boiler safety valves adjusted 4-7-13 Thickness of adjusting washers Port Wks. both  $\frac{3}{8}$  full. Star Wks.  $\frac{3}{8}$  full  $\frac{5}{8}$

Material of Crank shaft 9. steel Identification Mark on Do. A152HK Material of Thrust shaft 9. steel Identification Mark on Do. 5245PA.

Material of Tunnel shafts none Identification Marks on Do. — Material of Screw shafts 9. steel Identification Marks on Do. 44-610.

Material of Steam Pipes lap welded steel 109" o.d.  $\times \frac{1}{8}$ " & 106 $\frac{1}{2}$ " o.d.  $\times \frac{5}{16}$ " Test pressure 540 lbs per sq. in.

**General Remarks** (State quality of workmanship, opinions as to class, &c.)

The materials and workmanship are good. The boiler is fitted for burning liquid fuel. The machinery has been made under special survey and is eligible in my opinion for classification and the records **L.M.C. 7.13.** "Fitted for liquid fuel" - F.P. above 150°F.

It is submitted that  
this vessel is eligible for  
**THE RECORD. + L.M.C. 7.13. F.D.**

Fitted for Oil fuel 7.13. F.P. above 150°F

The amount of Entry Fee .. £ 3 : : When applied for, 28.7.13

Special .. £ 43. 11 : : When received, 31.7.13

Donkey Boiler Fee .. £ : : 1.8.13

Travelling Expenses (if any) £ : : 1.8.13

Committee's Minute FRI. AUG 4. 1913

Assigned

Thurs 7.13  
Fitted for oil fuel 7.13 F.P. above 150°F

*S. M. J. W.* 31.7.13.  
**Lewis Davis**  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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Foundation