

# REPORT ON MACHINERY.

No. 8444

Received at London Office MON. DEC. 28. 1914

Date of writing Report 19 When handed in at Local Office Dec 24. 1914 Port of MIDDLESBRO

No. in Survey held at Reg. Book. on the Steelton Date, First Survey August 11th Last Survey December 10th 1914 (Number of Visits 40)

Master Steelton Built at Steelton By whom built Messrs Richardson & Co Ltd Tons Gross 1014 Net 1014

Engines made at Steelton By whom made Messrs Bolin & Co Ltd (No 811) when made 1914

Boilers made at Steelton By whom made Messrs Bolin & Co Ltd when made 1914

Registered Horse Power 342 Owners The Ampleforth Steam Ship Co Ltd Port belonging to do Is Electric Light fitted do

Nom. Horse Power as per Section 28 342 Is Refrigerating Machinery fitted for cargo purposes do

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 26-41-64 Length of Stroke 45 Revs. per minute 54 Dia. of Screw shaft 13.03 Material of Ang 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 Yes

In the propeller boss Yes If the liner is in more than one length are the joints burned Yes 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 5-3

Dia. of Tunnel shaft as per rule 12.4 Dia. of Crank shaft journals as per rule 13.02 Dia. of Crank pin 14 Size of Crank webs 24.9 Dia. of thrust shaft under collars 14 Dia. of screw 14-0 Pitch of Screw 14-6 No. of Blades 4 State whether moceable do Total surface 924

No. of Feed pumps 2 Diameter of ditto 3 3/4 Stroke 33 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 3/4 Stroke 33 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3 Sizes of Pumps Bell 10-10, Fess 4 1/2 x 8, Fess 6-4 No. and size of Suctions connected to both Bilge and Donkey pumps 2 to each hold 3 1/2

In Engine Room 3 @ 3 1/2 In Holds, &c. 2 to each hold 3 1/2

1 to Tunnel Well 2 1/2

No. of Bilge Injections 1 sizes 0 1/2 Connected to condenser, or to circulating pump top pump Is a separate Donkey Suction fitted in Engine room & size Yes 3 1/2

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 Suction to fore holds How are they protected wood casing

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 8-10-14 of Stern Tube 8-10-14 Screw shaft and Propeller 24-11-14

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform

OILERS, &c.—(Letter for record 5) Manufacturers of Steel Spencer & Sons

Total Heating Surface of Boilers 5494 Is Forced Draft fitted do No. and Description of Boilers two Cyl. S.S.

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 23-11-14 No. of Certificate 5424

Can each boiler be worked separately Yes Area of fire grate in each boiler 63.34 No. and Description of Safety Valves to each boiler 2 direct-Spring loaded Area of each valve 8.29 Pressure to which they are adjusted 180 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2-0 Ext. dia. of boilers 16-6 Length 11-0 Material of shell plates Steel

Thickness 1/2 Range of tensile strength 29 3/4 - 33 Are the shell plates welded or flanged do Descrip. of riveting: cir. seams 2 R. laps

Long. seams 2 B. 2R Diameter of rivet holes in long. seams 5/16 Pitch of rivets 8 1/8 Lap of plates or width of butt straps 10 3/8 x 1 3/32

Percentages of strength of longitudinal joint rivets 90.4 Working pressure of shell by rules 183 lbs Size of manhole in shell 16 x 12

Size of compensating ring 4 3/4 x 1 1/2 No. and Description of Furnaces in each boiler 3 DEIGHTONS Material Steel Outside diameter 48 13/32

Length of plain part top do bottom do Thickness of plates crown 3/16 bottom 1/16 Description of longitudinal joint weld No. of strengthening rings 0

Working pressure of furnace by the rules 189 lbs Combustion chamber plates: Material Steel Thickness: Sides 2 3/32 Back 1 1/16 Top 2 3/32 Bottom 1 1/8

Pitch of stays to ditto: Sides 0 8 x 10 2 Back 0 2 x 0 2 Top 0 2 x 0 2 If stays are fitted with nuts or riveted heads None Working pressure by rules 200 lbs End plates in steam space: Material of stays Steel Diameter at smallest part 1.00 Area supported by each stay 98.4 Working pressure by rules 194 lbs Material of stays Steel

Material Steel Thickness 1 3/8 Pitch of stays 2 1/2 How are stays secured nut & 1" Working pressure by rules 195 lbs Material of Front plates at bottom Steel

AREA Diameter at smallest part 8.45 Area supported by each stay 457 Working pressure by rules 195 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1 1/2 Greatest pitch of stays 16 x 0 2 Working pressure of plate by rules 225 lbs

Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 1/8 Material of tube plates Steel Thickness: Front 1 1/16 Back 1 3/16 Mean pitch of stays 9 5/8

Pitch across wide water spaces 14 1/2 Working pressures by rules 192 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 4 3/4 x 1 1/8 Length as per rule 30 Distance apart 10 1/2 Number and pitch of stays in each 2 @ 9 1/2

Working pressure by rules 184 lbs Superheater or Steam chest; ~~how~~ connected to boiler None Can the superheater be shut off and the boiler worked separately do

Diameter do Length do Thickness of shell plates do Material do Description of longitudinal joint do Diam. of rivet holes do Pitch of rivets do Working pressure of shell by rules do Diameter of flue do Material of flue plates do Thickness do

Stiffened with rings do Distance between rings do Working pressure by rules do End plates: Thickness do How stayed do

Working pressure of end plates do Area of safety valves to superheater do Are they fitted with easing gear do

W 981-0078



**DONKEY BOILER** — Manufacturers of Steel *Su Report*

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 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
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
Working pressure of furnace by rules	Thickness of furnace crown plates		Stayed by	
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey	

**SPARE GEAR.** State the articles supplied: — Two each of con-rod top end and bottom end bolts and nuts 2 main bearing bolts and nuts, one set of coupling bolts and nuts one set of feed and bridge pump valves, one set each of H.P. & L.P. Lambottom rings pistons one propeller and one tail end shaft, assorted iron and bolts and nuts.

The foregoing is a correct description,  
**FOR BLAIR & CO., LIMITED.**  
*50 Nottingham* Manufacturer.

Dates of Survey while building	During progress of work in shops	1914 Aug 11, Sep 10, 11, 15, 16, 17, 18, 21, 22, 24, 30	Is the approved plan of main boiler forwarded herewith	Yes
	During erection on board vessel	30, Dec 3, 8, 10		Yes
	Total No. of visits	40		

Dates of Examination of principal parts	Cylinders	4-10-14	Slides	2-11-14	Covers	10-10-14	Pistons	12-10-14	Rods	10-10-14	
Connecting rods	12-10-14	Crank shaft	10-10-14	Thrust shaft	16-10-14	Tunnel shafts	10-10-14	Screw shaft	29-10-14	Propeller	2-11-14
Stern tube	3-10-14	Steam pipes tested	29-11-14	Engine and boiler seatings	17-11-14	Engines holding down bolts	24-11-14				
Completion of pumping arrangements	3-12-14	Boilers fixed	30-11-14	Engines tried under steam	3-12-14						
Main boiler safety valves adjusted	3-12-14	Thickness of adjusting washers	5s 5/16, 5p 5/16, P 3 3/8, P 2 5/16								
Material of Crank shaft	Eng Steel	Identification Mark on Do.	6924	Material of Thrust shaft	Eng Steel	Identification Mark on Do.	442N				
Material of Tunnel shafts	Eng Steel	Identification Marks on Do.	442N	Material of Screw shafts	Eng Steel	Identification Marks on Do.	442N				
Material of Steam Pipes	Solid drawn Copper	Test pressure	360 lbs								

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
 The Engines and Boilers of this vessel have been constructed under Special Survey and are of good material and workmanship. They have been fitted and secured on board in accordance with the Rules, are now in good working condition and eligible in my opinion to have the notation of  $\sigma_4$  L.M.C. 12-14 in the Register Book.

It is submitted that this vessel is eligible for **THE RECORD + L.M.C. 12.14.**

*JWD*  
 29/12/14  
*JRJR*

The amount of Entry Fee	£ 3 : 0	When applied for	
Special	£ 34 : 2	When received	23/12/14
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		24/12/14

*yo*  
**Thomas Miller**  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute THE REC 29 1914  
 Assigned + L.M.C. 12.14

MACHINE CERTIFICATE  
 WRITTEN.

Certificate (if required) to be sent to Middlesbrough.

Rpt. 5a.

Date of writing Report  
 No. in Survey her  
 Reg. Book.  
 on the  
 Master  
 Engines made at  
 Boilers made at  
 Registered Horse Po

**MULTITUBULAR**

(Letter for record  
**Boilers** One  
 No. of Certificate 5  
 safety valves to each  
 Are they fitted with  
 Smallest distance bet  
 Material of shell pl

Descr. of riveting  
 Top of plates or wi  
 rules 186 lbs  
**boiler** 2 pl

Description of longitu  
 plates: Material  
 Top 9 3/4 x 9 1/2 If stay  
 smallest part 1.09  
 Pitch of stays 14  
 Area supported by  
 Lower back plate  
 Pitch of tubes 4 5/8  
 water spaces  
 girder at centre  
 Working pressure b  
 separately  
 holes Pitch  
 If stiffened with ring  
 Working pressure o

Dates of Survey while building  
 During progress of work in shops  
 During erection on board vessel

**GENERAL**  
 This  
 and wo  
 It has  
 adjusted  
 Survey Fee  
 Travelling Exp

Committee's  
 Assigned

