

REPORT ON MACHINERY.

No. 7841

Received at London Office

WED. APR. 2-1913

Date of writing Report 26.3.13

When handed in at Local Office 31.3.13

Port of Middlesbrough-on-Tees

No. in Survey held at Stockton-on-Tees

Date, First Survey 9th Dec. 1912

Last Survey 20th March 1913

Reg. Book.

on the

Steel Screw Steamer "Dartwen"

(S.S. No 630)

Tons

Gross 4793.23

Net 3022.20

Master J. A. Keil

Built at Thornaby

By whom built Richardson, Buck & Co. Ltd.

When built 1913

Engines made at Stockton

By whom made Messrs Blair & Co. Ltd. (No 1761)

when made 1913

Boilers made at Stockton

By whom made Messrs Blair & Co. Ltd.

when made 1913

Registered Horse Power

Owners W. B. J. Jones & Co. Ltd. (W. B. J. Jones)

Port belonging to Cardiff

Nom. Horse Power as per Section 28 385

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted no

ENGINES, &c.—Description of Engines

Tri-compound

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 26-42-70

Length of Stroke 48

Revs. per minute 63

Dia. of Screw shaft

as per rule 14.48

Material of 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 in on 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 tight fit If two

liners are fitted, is the shaft lapped or protected between the liners

Length of stern bush 5'-4"

Dia. of Tunnel shaft as per rule 12.98

as fitted 13.34

Dia. of Crank shaft journals as per rule 13.63

as fitted 14.4

Dia. of Crank pin 14.4

Size of Crank webs 28.4 x 9.4

collars 14.4

Dia. of screw 17'-6"

Pitch of Screw 17'-6"

No. of Blades 4

State whether moveable no

Total surface 96 sq ft

No. of Feed pumps 2

Diameter of ditto 3.5

Stroke 34

Can one be overhauled while the other is at work yes

No. of Bilge pumps 2

Diameter of ditto 5

Stroke 34

Can one be overhauled while the other is at work yes

No. of Donkey Engines 3

Sizes of Pumps 2 Ballant-9x10+9x6"

Fuel 4x8

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 3 @ 3.5"

In Holds, &c. 2 @ 3.5" in each hold

Funnel with one @ 2.5"

No. of Bilge Injections 1

sizes 7"

Connected to condenser, or to circulating pump yes

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 fore hold motions

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 12.2.13 of Stern Tube 12.2.13 Screw shaft and Propeller 24.2.13

Is the Screw Shaft Tunnel watertight see hull plat Is it fitted with a watertight door yes

worked from top platform

BOILERS, &c.—(Letter for record (S))

Manufacturers of Steel Messrs John Spencer & Sons

Total Heating Surface of Boilers 6169

Is Forced Draft fitted no

No. and Description of Boilers 3 single ended

Working Pressure 180

Tested by hydraulic pressure to 360

Date of test 11.2.13

No. of Certificate 5022

Can each boiler be worked separately yes

Area of fire grate in each boiler 57.7 sq ft

No. and Description of Safety Valves to

each boiler 2 direct spring

Area of each valve 7.07

Pressure to which they are adjusted 185

Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 3'-0"

Mean dia. of boilers 15'-0"

Length 11'-0"

Material of shell plates steel

Thickness 1.5

Range of tensile strength 28-32

Are the shell plates welded or flanged no

Descrip. of riveting: cir. seams 2 R. lap

long. seams 2 B-3 Riv

Diameter of rivet holes in long. seams 1.4

Pitch of rivets 8.5

Lap of plates or width of butt straps 18.5 x 1.5

5 Rivets per pitch

Per centages of strength of longitudinal joint

rivets 88.2

plate 85.29

Working pressure of shell by rules 184

Size of manhole in shell 16" x 12"

Size of compensating ring 7.5 x 1.5

No. and Description of Furnaces in each boiler 3 Brighton

Material steel Outside diameter 45.5

Length of plain part

top

Thickness of plates

crown

bottom

Description of longitudinal joint welded

No. of strengthening rings

Working pressure of furnace by the rules 191

Combustion chamber plates: Material steel Thickness: Sides 1/2

Back 1/2

Top 1/2

Bottom 1/2

Pitch of stays to ditto: Sides 8.5 x 10

Back 9.5 x 9

Top 9.5 x 9

If stays are fitted with nuts or riveted heads nuts

Working pressure by rules 186

Material of stays steel

Diameter at smallest part 1.59

Area supported by each stay 87.75

Working pressure by rules 204

End plates in steam space: 2 x 1 washer

Material steel

Thickness 1.4

Pitch of stays 18 x 12

How are stays secured nuts

Working pressure by rules 204

Material of stays steel

Diameter at smallest part 3.04

Area supported by each stay 349

Working pressure by rules 216

Material of Front plates at bottom steel

Thickness 1.5

Material of Lower back plate steel

Thickness 1.5

Greatest pitch of stays 14.5 x 9

Working pressure of plate by rules 229

Diameter of tubes 3.5

Pitch of tubes 4.5 x 4.5

Material of tube plates steel

Thickness: Front 1.5

Back 1.2

Mean pitch of stays 11"

Pitch across wide water spaces 14.5

Working pressures by rules 181

Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 7.5 x 1.5

Length as per rule 29

Distance apart 9.5

Number and pitch of stays in each 209

Working pressure by rules 185

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

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Lloyd's Register

Foundation

W 497-0161

VERTICAL DONKEY BOILER—

Manufacturers of Steel

See Middlesbrough Report No 7751

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 each of con. rod top end, bottom end and main bearing bolts and nuts: one set of coupling bolts and nuts: one set of feed and bilge pump valves assorted bolts & nuts, iron of various sizes; one tail end shaft & one propeller.

The foregoing is a correct description,

FOR BLAIR & CO., LIMITED

See Middlesbrough

Manufacturer.

Dates of Survey while building	During progress of work in shops --	SECRETARY. 1912 Dec. 9. 11. 13. 16. 17. 18. 20. 22. 24. 1913 Jan. 8. 9. 10. 12. 14. 15. 16. 17. 20. 22. 24. 27. 29. 30. Feb. 1.
	During erection on board vessel --	6. 7. 10. 11. 12. 13. 17. 18. 19. 24. 26. 27. Dec. 2. 11. 17. 20.
	Total No. of visits	40.

Is the approved plan of main boiler forwarded herewith ☒

Dates of Examination of principal parts—Cylinders	10.1.13	Slides	8.1.13	Covers	8.1.13	Pistons	23.1.13	Rods	23.1.13
Connecting rods	27.1.13	Crank shaft	22.1.13	Thrust shaft	30.1.13	Tunnel shafts	6.2.13	Screw shaft	19.2.13
Stern tube	7.2.13	Steam pipes tested	27.2.13	Engine and boiler seatings	12.2.13	Engines holding down bolts	26.2.13		
Completion of pumping arrangements	11.3.13	Boilers fixed	11.3.13	Engines tried under steam	11.3.13				
Main boiler safety valves adjusted	11.3.13	Thickness of adjusting washers	P.B.H. 3-5/16: 6.P.H. 5-5/16: 5.P.H. 5-5/16						
Material of Crank shaft	By Steel	Identification Mark on Do.	6800	Material of Thrust shaft	By Steel	Identification Mark on Do.	9311-N		
Material of Tunnel shafts	By Steel	Identification Marks on Do.	9311-N	Material of Screw shafts	By Steel	Identification Marks on Do.	6800		
Material of Steam Pipes	Solid drawn copper (4 1/2 dia x 1/2 S.S.S.)	Test pressure	400 lbs.						

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been built under special survey. The materials and workmanship are sound and good. The boilers and main steam pipes were tested by hydraulic pressure and the engines and boilers examined under steam and all found satisfactory. In my opinion this vessel is eligible to have the notation of L.M.C. 3-13 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 3.13.

Wm. S.
2.4.13.

The amount of Entry Fee	£ 3-0-0	When applied for,	19. 1. 13
Special	£ 39-5-0		
Donkey Boiler Fee	£	When received,	31. 3. 13
Travelling Expenses (if any)	£		

Committee's Minute

Assigned

21. 4. 13
+ L.M.C. 3.13

Wm. Morrison

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



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MACHINERY CERTIFICATE WRITTEN.