

REPORT ON MACHINERY.

No. 34145
THU. 11 OCT 1917

Received at London Office

Date of writing Report

19

When handed in at Local Office

19

Port of Glasgow

No. in Survey held at
Reg. Book.

on the

Glasgow

R.F.A. Box 02

Date, First Survey 6th Nov. 1916 Last SurveySupt-29th 1917

(Number of Visits)

Master

Built at Glasgow

By whom built Barclay Curle & Co

Tons
Gross
Net

When built 1917

Engines made at

Glasgow

By whom made

Barclay Curle & Co

when made

1917

Boilers made at

Glasgow

By whom made

Barclay Curle & Co

when made

1917

Registered Horse Power

Owners

Port belonging to

Nom. Horse Power as per Section 28

144

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

15 $\frac{1}{2}$ " 25 $\frac{1}{2}$ " 41 $\frac{1}{2}$ "

Length of Stroke

27

Revs. per minute

130

Dia. of Screw shaft

as per rule 8.39

Material of

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

Length

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

fits all the way

two

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

Length of stern bush

3' 2"

Dia. of Tunnel shaft

as per rule 7.5

Dia. of Crank shaft journals

as per rule 7.87

Dia. of Crank pin

8 $\frac{1}{4}$ "

Size of Crank webs

5 $\frac{1}{2}$ " 15 $\frac{1}{2}$ "

Dia. of thrust shaft under

collars

8 $\frac{1}{4}$ "

Dia. of screw

10' 9"

Pitch of Screw

4' 9"

No. of Blades

4

State whether moveable

No

Total surface

38 $\frac{1}{2}$ "

No. of Feed pumps

2

Diameter of ditto

7 x 5

Stroke

15

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

3

Diameter of ditto

3 $\frac{1}{4}$ "

Stroke

13 $\frac{1}{2}$ "

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

1

In engine room

Size of Pumps

11' 8" x 10"

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

In Engine Room

(3) 2 $\frac{1}{2}$ "

In Holds, &c.

Four pumps

(1) 4" lower hold (1) 4" in

Cofferdam (2) 4" in

No. of Bilge Injections

1

Connected to condenser, or to circulating pump

pump

Is a separate Donkey Suction fitted in Engine room & size

Yes

3"

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

Yes

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

20/7/17

of Stern Tube

20/7/17

Screw shaft and Propeller

20/7/17

Is the Screw Shaft Tunnel watertight

None

Is it fitted with a watertight door

worked from

BOILERS, &c.—(Letter for record

(5)

Manufacturers of Steel

D. Colville & Sons

Steel Coy of Scotland

Wallsend Howden system

Is Forced Draft fitted

Yes

Total Heating Surface of Boilers

2206

No. and Description of Boilers

2

Single ended

Working Pressure

180

Tested by hydraulic pressure to

360

Date of test

30/4/17

No. of Certificate

13767

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

7.06

Pressure to which they are adjusted

185

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

Well clear

Mean dia. of boilers

10' 3"

Length

11' 0"

Material of shell plates

Steel

Thickness

15"

Range of tensile strength

28/32

Are the shell plates welded or flanged

7/10

Descrip. of riveting: cir. seams

Cap table

long. seams

Butt table

Diameter of rivet holes in long. seams

1 $\frac{1}{4}$ "

Pitch of rivets

7 $\frac{1}{2}$ "

Lap of plates or width of butt straps

14' 10"

Per centages of strength of longitudinal joint

rivets 86.0

plate 86.2

Working pressure of shell by rules

186

Size of manhole in shell

16' 12"

Size of compensating ring

2' 6" x 2' 10"

No. and Description of Furnaces in each boiler

2

Material

Steel

Outside diameter

37 $\frac{1}{4}$ "

Length of plain part

top

Thickness of plates

crown 15

bottom 32

Description of longitudinal joint

Welded

No. of strengthening rings

-

Working pressure of furnace by the rules

186

Combustion chamber plates: Material

Steel

Thickness: Sides

9/16"

Back

9/16"

Top

9/16"

Bottom

Pitch of stays to ditto: Sides

7 $\frac{1}{4}$ " x 7 $\frac{1}{4}$ "

Back

7 $\frac{1}{4}$ " x 8"

Top

7 $\frac{1}{4}$ " x 7 $\frac{1}{4}$ "

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

182

Material of stays

Steel

Diameter at smallest part

1.49

Area supported by each stay

60

Working pressure by rules

192

End plates in steam space:

Material

Steel

Material

Steel

Thickness

29/32

Pitch of stays

14 $\frac{1}{2}$ " x 14"

How are stays secured

2 nuts

Working pressure by rules

180

Material of stays

Steel

Diameter

at smallest part

4.11

Area supported by each stay

203

Working pressure by rules

205

Material of Front plates at bottom

Steel

Thickness

29/32

Material of Lower back plate

Steel

Thickness

29/32

Greatest pitch of stays

14"

Working pressure of plate by rules

224

Diameter of tubes

2 $\frac{1}{2}$ "

Pitch of tubes

3 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ "

Material of tube plates

Steel

Thickness: Front

29/32

Back

3/4"

Mean pitch of stays

8 $\frac{3}{4}$ "

Pitch across wide water spaces

13 $\frac{1}{2}$ "

Working pressures by rules

184

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

7 $\frac{1}{2}$ " x 16"

Length as per rule

28 $\frac{1}{16}$ "

Distance apart

Working pressure by rules

184

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

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:— 2 top end bolts & nuts. 2 bottom end bolts & nuts. 2 main bearing bolts & nuts. 1 set of coupling bolts & nuts. fuel & bridge pump valves, iron bolts & nuts of various sizes, and all other articles specified.

The foregoing is a correct description,

FOR BARCLAY, CURLE & CO. LTD.

Manufacturer.

John Alexander

Dates of Survey while building	During progress of work in shops	During erection on board vessel	Total No. of visits
1914 Dec. 6, 24, 25, 26, 27, 28, 29, 30, 31, 1915 Jan. 5, 9, 10, 15, 26, Feb. 6, 8, 23, 26, Mar. 5, 7, 9, 14, 15, 19, 20, 22, 24, Apr. 2, 4, 5, 13, 14, 17, 19, 20, 23, 24, 28, 30, May 2, 4, 10, 14, 18, 24, 31, June 4, 13, 19, 25, July 2, 10, 12, 14, 24, 25, 26, 27, Aug. 4, 15, 16, 22, 24, 28, 30, 1915 Sept. 1, 2, 12, 13, 15, 19, 20, 21, 25, 26, 27, 29.	1914 Dec. 6, 24, 25, 26, 27, 28, 29, 30, 31, 1915 Jan. 5, 9, 10, 15, 26, Feb. 6, 8, 23, 26, Mar. 5, 7, 9, 14, 15, 19, 20, 22, 24, Apr. 2, 4, 5, 13, 14, 17, 19, 20, 23, 24, 28, 30, May 2, 4, 10, 14, 18, 24, 31, June 4, 13, 19, 25, July 2, 10, 12, 14, 24, 25, 26, 27, Aug. 4, 15, 16, 22, 24, 28, 30, 1915 Sept. 1, 2, 12, 13, 15, 19, 20, 21, 25, 26, 27, 29.	1914 Dec. 6, 24, 25, 26, 27, 28, 29, 30, 31, 1915 Jan. 5, 9, 10, 15, 26, Feb. 6, 8, 23, 26, Mar. 5, 7, 9, 14, 15, 19, 20, 22, 24, Apr. 2, 4, 5, 13, 14, 17, 19, 20, 23, 24, 28, 30, May 2, 4, 10, 14, 18, 24, 31, June 4, 13, 19, 25, July 2, 10, 12, 14, 24, 25, 26, 27, Aug. 4, 15, 16, 22, 24, 28, 30, 1915 Sept. 1, 2, 12, 13, 15, 19, 20, 21, 25, 26, 27, 29.	40

Is the approved plan of main boiler forwarded herewith *Sun Birchhol*

Dates of Examination of principal parts	Cylinders	Slides	Covers	Pistons	Rods
Connecting rods	Crank shaft	Thrust shaft	Tunnel shafts	Screw shaft	Propeller
Stern tube	Steam pipes tested	Engine and boiler seatings	Engines holding down bolts		
Completion of pumping arrangements	Boilers fixed	Engines tried under steam			
Main boiler safety valves adjusted	Thickness of adjusting washers				
Material of Crank shaft	Identification Mark on Do.	Material of Thrust shaft	Identification Mark on Do.		
Material of Tunnel shafts	Identification Marks on Do.	Material of Screw shafts	Identification Marks on Do.		
Material of Steam Pipes		Test pressure			

General Remarks (State quality of workmanship, opinions as to class, &c., Duplicate of RFA "Birchhol".)
These engines and boilers have been built under special survey the materials and workmanship are of good description they have been well fitted on board and tried under steam. This machinery is in our opinion eligible to have certification of + LMC 9.17 (in red) & fitted for oil fuel F.P. above 150°F in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + LMC 9.17. F.D. Fitted for oil fuel F.P. above 150°F.

The amount of Entry Fee	£	When applied for
Special	£ 55. 0	5/10/17
Donkey Boiler Fee	£	When received
Travelling Expenses (if any)	£	

Committee's Minute GLASGOW 9 - OCT. 1917

Assigned + L.M.C. 9.17 F.D.

Fitted for oil fuel F.P. above 150°F

A. McKeand & J. Ritchie
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.