

## REPORT ON MACHINERY.

No. 82426.  
THU. MAR. 6 - 1913

Date of writing Report

19

When handed in at Local Office

5/3/13 Port of Glasgow

Received at London Office

No. in Survey held at  
Reg. Book.

Clydebank

Date, First Survey 13. 11. 11

Last Survey 4. 5. 1913

(Number of Visits 85)

11 Supp on the Stul Triple screw 1/2 NiagaraGross 13415  
Tons Net 7582  
When built 1913

Master

Built at

Clydebank

By whom built John Brown &amp; Co Ltd

Engines made at

Clydebank

By whom made

John Brown &amp; Co Ltd

when made 1913

Boilers made at

do

By whom made

do

when made 1913

Registered Horse Power

Owners

Canadian Australasian Royal Mail Port belonging to London

Nom. Horse Power as per Section 28 2175

Is Refrigerating Machinery fitted for cargo purposes

yes

Is Electric Light fitted

yes

ENGINES, &c.—Description of Engines Twin screw Triple expansion + 1 L.P. engine No. of Cylinders 8 No. of Cranks 4 eachDia. of Cylinders 27 1/2 - 42 - 47 - 47 Length of Stroke 54 Revs. per minute

Dia. of Screw shaft

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

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 - 3 1/4

Dia. of Tunnel shaft

Dia. of Crank shaft journals

Dia. of Crank pin

Size of Crank webs

Dia. of thrust shaft under

collars

Dia. of screw

Pitch of Screw

No. of Blades

State whether moveable

yes

Total surface

66 sq ft

No. of Feed pumps 3 Weirs Diameter of ditto 17 - 12 1/2 Stroke 27

Can one be overhauled while the other is at work

No. of Bilge pumps 2 Duplex Diameter of ditto 10 - 11 Stroke 10

Can one be overhauled while the other is at work

No. of Donkey Engines 13

SIZES OF PUMPS

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

In Engine Room 5 of 3 1/2 Forward stokehold 5 of 3 1/2 Aft stokehold 4 of 3 1/2 In Holds, &c. Chain locker 1 of 2 1/2 No. 1 Hold 2 of 3 1/2 No. 2 Hold 2 of 3 1/2No. 2 Hold or bunker 2 of 3 1/2 No. 3 Hold or bunker 2 of 3 1/2 No. 4 Hold 2 of 3 1/2 No. 5 Hold 1 of 3 1/2 Tunnels 2 of 3 1/2 Tunnel well 1 of 3 1/2No. of Bilge Injections 2 sizes 13 1/2 Connected to condenser, or to circulating pump

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

below

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

Ridge &amp; oil fuel

How are they protected

Ridge pipes in limbers  
Iron casings round oil fuel pipes

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 7. 8. 12. of Stern Tube 7. 8. 12. Screw shaft and Propeller 7. 8. 12.

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from upper deck.

MILERS, &c.—(Letter for record to) Manufacturers of Steel & Colville & Sons. Stul Co of ScotlandTotal Heating Surface of Boilers 31,564 sq ft

Is Forced Draft fitted

yes

No. and Description of Boilers Two Double endedWorking Pressure 250 lbsTested by hydraulic pressure to 440 lbs

Date of test

No. of Certificate

A 11525  
B 11555

Can each boiler be worked separately

yes

Area of fire grate in each boiler 157 sq ft

No. and Description of Safety Valves to

each boiler 3 direct spring loaded

Area of each valve

12.56 sq in

Pressure to which they are adjusted

220 lbs

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

18 in

Mean dia. of boilers

17'-0"

Length

21'-10"

Material of shell plates

steel

Thickness

1 3/4 in

Range of tensile strength

31/35 tons

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

DR &amp; TR lap

Pitch of rivets

10 1/2 in

Lap of plates or width of butt straps

24 1/2 in

Percentage of strength of longitudinal joint

97.3

Working pressure of shell by rules

220 lbs

Size of manhole in shell

14 x 12

No. and Description of Furnaces in each boiler

8 Morrison

Material

steel

Outside diameter

46 5/8 in

Length of plain part

Thickness of plates

crown

bottom

Description of longitudinal joint

welded

No. of strengthening rings

Working pressure of furnace by the rules

242

Combustion chamber plates: Material

steel

Thickness: Sides

5/8 in

Back

2 1/2 in

Top

5/8 in

Bottom

2 1/2 in

Pitch of stays to ditto: Sides

7 1/2 x 7 1/2 in

Back

8 x 8 1/4 in

Top

7 1/2 x 7 1/2 in

If stays are fitted with nuts or riveted heads

nuts

Material of stays

iron

Diameter at smallest part

1.76 in

Area supported by each stay

56.25 sq in

Working pressure by rules

249

End plates in steam space:

Material

steel

Thickness

1 5/8 in

Pitch of stays

16 1/8 x 16 3/8 in

How are stays secured

DN

Working pressure by rules

255

Material of Front plates at bottom

steel

Thickness

15/16 in

Greatest pitch of stays

13 1/2 in

Working pressure of plate by rules

410

Diameter of tubes

2 1/2 in

Pitch of tubes

3 3/4 x 3 3/4 in

Material of tube plates

steel

Thickness: Front

15/16 in

Back

15/16 in

Mean pitch of stays

9 3/8 in

Working pressures by rules

349

Girders to Chamber tops: Material

steel

Depth and

Distance apart

7 1/2 in

Number and pitch of stays in each

3 of 7 1/2 in

Working pressure by rules

220

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

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

End plates: Thickness

How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

yes

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

End plates: Thickness

How stayed

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

End plates: Thickness

How stayed

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How stayed

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

End plates: Thickness

How stayed



**VERTICAL DONKEY BOILER—** *Manufacturers of Steel*

No.	Description	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
If fitted with easing gear	If steam from main boilers can enter the donkey boiler	Dia. of donkey boiler	Date of adjustment
Material of shell plates	Thickness	Range of tensile strength	Length
Dia. of rivet holes	Whether punched or drilled	Descrip. of riveting long. seams	Rivets
Working pressure of shell by rules	Thickness of shell crown plates	Lap of plating	Plates
Diameter of furnace Top	Bottom	Pitch of rivets	Per centage of strength of joint
Working pressure of furnace by rules	Length of furnace	Radius of do.	No. of stays to do.
Diameter of uptake	Thickness of uptake plates	Thickness of furnace plates	Dia. of stays
	Thickness of water tubes	Radius of do.	Description of joint
		Dates of survey	Stayed by

Diameter of uptake ..... Thickness of uptake plates ..... Thickness of water tubes ..... Date .....

**SPARE GEAR.** State the articles supplied:— 4 top end, 4 bottom end, 2 main bearing + 16 coupling bolts & nuts. Set of feed & bilge pump valves. 4 pairs top end brasses. 2 pairs bottom end brasses. 2 piston rods. 1 eccentric strap. 1 valve spindle. 1 air pump head valve - Circulating. John Brown & Company, Limited.

pump impeller & shaft. Weirs pump piston & pump rod - assorted iron bolts & nuts.

The foregoing is a correct description,

*W. Henderson*  
Assistant Secretary.

The foregoing is a copy of the report of the

Manufacturer.

Dates of Survey while building	During progress of work in shops --	During erection on board vessel --	Total No. of visits
1911. Nov. 13. 20. 27. Dec. 7. 15.	1912. Jan. 8. 12. 19. 22. Feb. 1. 13. 14. 21. 28. March 11. 15. 22. 29. April 10. 16. 26. 30.	May 6. 8. 14. 20. 21. 27. June 4. 6. 12. 14. 21. 26. 28. July 4. 5. Aug. 7. 10. 11. 26. Sept. 2. 5. 9. 13. 16. 19. 26. Oct. 2. 4. 8. 16. 23. 29.	Nov. 5. 7. 8. 13. 14. 21. 25. 27. Dec. 4. 9. 12. 13. 14. 27. 1913. Jan. 8. 13. 16. 20. 24. 28. 29. Feb. 4. 5. 11. 17. 19. 21. 24.
	March 8. 4		85.

Is the approved plan of main boiler forwarded herewith

yes

" donkey " " "

**Dates of Examination of principal parts**—Cylinders 15.12.11 66.5.12 Slides 20.5.12 Covers 31.5.12 Pistons 20.5.12 Rods 29.3.12  
Connecting rods 29.3.12 Crank shaft 19.6.12 Thrust shaft 30.4.12 Tunnel shafts 12.6.12 Screw shafts 16.4.12 Propellers 19.6.12  
Stern tube 19.6.12 Steam pipes tested 10.7.12 29.1.13 Engine and boiler seatings 7.8.12 Engines holding down bolts 8.10.12  
Completion of pumping arrangements 20.1.13 Boilers fixed 14.11.12 Engines tried under steam 3.3.13.  
Main boiler safety valves adjusted 21.2.13. Thickness of adjusting washers PB PV  $\frac{7}{16}$  CV  $\frac{7}{16}$  SV  $\frac{13}{32}$  SB PV  $\frac{3}{8}$  Iron CV  $\frac{3}{8}$  full SV  $\frac{3}{8}$  full  
Material of Crank shaft steel Identification Mark on Do. 920 D.F.C. Material of Thrust shaft steel Identification Mark on Do. 415 H.C.  
Material of Tunnel shafts steel Identification Marks on Do. 415 H.C. Material of Screw shafts Iron Identification Marks on Do. 415 H.C.  
Material of Steam Pipes Iron Test pressure 660 lbs<sup>sq</sup> in.

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

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The machinery of this vessel (two triple expansion reciprocating engines and 1 LP turbine) has been constructed under special survey in accordance with the rules and approved plans enclosed and has been seen working satisfactorily under steam. Materials and workmanship are good.

All bunkers are constructed for carrying coal or oil fuel (see approved plans) and a complete installation for burning oil fuel (WallSEND Howden System) has been fitted and boilers seen at work on oil fuel and also on coal.

No 4 Hold and Tween decks and No 5 Tween decks are fitted for carrying refrigerated cargo see refrigerating machinery report.

The machinery of this vessel is eligible in my opinion to be classed + LMC 3-13  
 Fitted for oil fuel 3-13.  
 It is submitted that  
 this vessel is eligible for  
 LMC 3-13. F.D.

1 Low pressure turbine

The amount of Entry Fee	.. £	3	:	0	:	When applied for,
Special	.. .. .	£	99	:	4	572/1913
Donkey Boiler Fee	.. .. .	£	:	:	:	When received,
Travelling Expenses (if any)	£	:	:	:	:	8/3/13

## Committee's Minute

*Assigned*

+ Lmb 3.13  
Listed for oil fuel 3.13 &c.

Surveyor's Signature

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



Lloyd's Register  
Foundation