

REPORT ON MACHINERY.

No. 21109

Port of Glasgow

Received at London Office TUES. 1 SEP 1903

No. in Survey held at Glasgow
Reg. Book 2574 "Becate"

Date, first Survey 14 July

Last Survey 21st Aug 1901

(Number of Visits 21)

Master _____ Built at Glasgow By whom built J.W. Henderson & Co. Ltd. When built 1903

Engines made at Glasgow By whom made J.W. Henderson & Co. Ltd. when made 1903

Boilers made at Glasgow By whom made J.W. Henderson & Co. Ltd. when made 1903

Registered Horse Power 99 1/2 Owners Andrew Coats Esq. Port belonging to Glasgow

Net Horse Power as per Section 28 99.52 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Yarn Triple screw No. of Cylinders six No. of Cranks six

Dia. of Cylinders 10"-16" 12 1/2" Length of Stroke 18" Revs. per minute 190 Dia. of Screw shaft 5 3/8" Material of screw shaft 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 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 24 1/4"

Dia. of Tunnel shaft 5 3/8" Dia. of Crank shaft journals 5 3/8" Dia. of Crank pin 5 7/8" Size of Crank webs 4 1/2" x 4" Dia. of thrust shaft under collars 5 5/8" Dia. of screw 6.3" Pitch of screw 8.0" No. of blades 4 State whether moveable No Total surface 15 sq ft

No. of Feed pumps One to each engine Diameter of ditto 3 1/2" Stroke 10" Can one be overhauled while the other is at work Yes

No. of Bilge pumps One to each engine Diameter of ditto 2 1/2" Stroke 10" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3 Sizes of Pumps General 4 x 4 1/2 x 8 duplex, feed 4 x 3 1/2 x 11 single, sanitary 4 x 4 x 6 single No. and size of Suctions connected to both Bilge and Donkey pumps Automatic In Holds, &c. 2 forward 3, one aft 2"

In Engine Room Three 3"

No. of bilge injections one sizes 2 3/4" Connected to condensers, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size 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 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 all in engine room 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 Forward bilge pipes, umalar steam 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Yes Is the screw shaft tunnel watertight No tunnel

Is it fitted with a watertight door Yes worked from Yard platform of engine room

OILERS, &c.— (Letter for record (5)) Total Heating Surface of Boilers 1553 sq. ft. Is forced draft fitted Yes

No. and Description of Boilers One single ended cylindrical Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs.

Date of test 21-4-03 Can each boiler be worked separately Yes Area of fire grate in each boiler 42 sq. ft. No. and Description of safety valves to each boiler 2 spring loaded Area of each valve 4.06" Pressure to which they are adjusted 205 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 9" Mean dia. of boilers 13'-0" Length 10'-6" Material of shell plates steel

Thickness 1 3/16" Range of tensile strength 28/32 ton Are they welded or flanged No Descrip. of riveting: cir. seams huddle, lap long. seams Triple, butts

Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 3/8" Lap of plates or width of butt straps 18 1/2"

Percentages of strength of longitudinal joint 91.60 Working pressure of shell by rules 201 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring 2' 10" x 30" x 1 1/2" No. and Description of Furnaces in each boiler 2 Mansons Material Steel Outside diameter 50 1/2"

Length of plain part top 5/8" Thickness of plates bottom 5/8" Description of longitudinal joint welded No. of strengthening rings —

Working pressure of furnace by the rules 200 lbs. Combustion chamber plates: Material Steel Thickness: Sides 4/16" Back 3/32" Top 5/8" Bottom 3/4"

Pitch of stays to ditto: Sides 8 1/2" x 8" Back 8 1/2" x 8 1/2" Top 8 1/2" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 206 lbs.

Material of stays steel Diameter at smallest part 1 1/2" Area supported by each stay 59 sq. in. Working pressure by rules 248 lbs. End plates in steam space: Material Steel Thickness 1 1/8" Pitch of stays 14" x 14" How are stays secured double nuts Working pressure by rules 207 lbs. Material of stays steel

Diameter at smallest part 2.84" Area supported by each stay 289 sq. in. Working pressure by rules 219 lbs. Material of Front plates at bottom Steel

Thickness 1 1/8" Material of Lower back plate Steel Thickness 1/8" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 219 lbs.

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

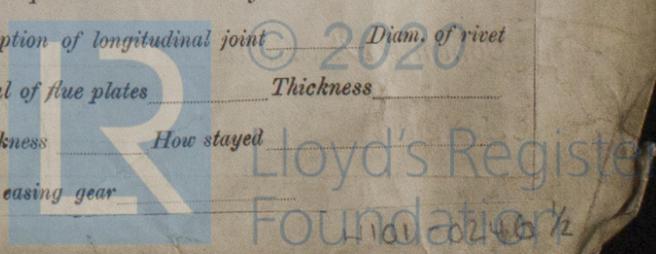
Pitch across wide water spaces 14 1/2" Working pressures by rules 200 lbs. Girders to Chamber tops: Material steel Depth and thickness of girder at centre 6 1/2" x 3" Length as per rule 25 7/8" Distance apart 8 1/2" Number and pitch of Stays in each 2 8' pitch

Working pressure by rules 207 lbs. Superheater or Steam chest; how connected to boiler — 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 _____



DONKEY BOILER— No. Description *Blake's Patent Boiler*
 Made at *Middlesbrough* By whom made *Richardson, Westgarth & Co.* When made *1903* Where fixed *stokehold*
 Working pressure *100 lb.* tested by hydraulic pressure to *300 lb.* No. of Certificate *2987* Fire grate area Description of safety valves *spring loaded*
 No. of safety valves *one* Area of each *4.9* Pressure to which they are adjusted *102 lb.* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *4.9* Length *10'-0"* Material of shell plates *Steel* Thickness $\frac{13}{32}$ Range of tensile strength $\frac{27}{32}$ Descrip. of riveting long. seams *DR lap.* Dia. of rivet holes $\frac{13}{16}$ Whether punched or drilled *drilled* Pitch of rivets *2 3/4*
 Lap of plating *4 1/4* Per centage of strength of joint Rivets *79.2* Thickness of shell crown plates $\frac{5}{8}$ Radius of do. *4'-0"* No. of Stays to do. *2*
 Dia. of stays. Diameter of furnace Top *2'-3"* Bottom *3'-7"* Length of furnace *3'-0 1/2"* Thickness of furnace plates $\frac{7}{16}$ Description of joint *Lap S.R.* Thickness of furnace crown plates $\frac{7}{16}$ Stayed by *Lap 7/8 dished, 2.9 rad.* Working pressure of shell by rules *101.9*
 Working pressure of furnace by rules *100 lb.* Diameter of uptake *2 1/2"* Thickness of uptake plates $\frac{2.5}{32}$ Thickness of water tubes

SPARE GEAR. State the articles supplied:— *8 top & bottom end bolts, 2 main bearing bolts, 1 set coupling bolts nuts for one coupling Set of valves for all the pumps (Meed, Bilge and Air) Assortment of Bolts, nuts, springs & other gear etc.*

The foregoing is a correct description,
DAVID W. ... Manufacturer.
A. J. Henderson

Dates of Survey while building } During progress of work in shops - } *1903 Feb 4, Mar 13, 20, 24, 26, Apr 9, 24, 28, May 6, 8, 27, June 4, 11, 16*
 } During erection on board vessel - } *20, 22, July 2, August 6, 10, 18, 24,*
 Total No. of } *21,* Is the approved plan of main boiler forwarded herewith
 " " " donkey " " "

General Remarks (State quality of workmanship, opinions as to class, &c.)
*The machinery and boilers have been built under special survey, the materials and workmanship are of good description. On completion the main boiler was tested by hydraulic press: to double the working pressure & was found tight and sound in every respect. The engines were tried under steam & were found to work satisfactorily. In my opinion they are eligible for record **LMC 8-03** in the Yacht Register.*

It is submitted that this vessel is eligible for THE RECORD + **LMC 8.03** FD. ELEC. LIGHT.

J.M. *Ch.*
3.9.03

(Label)
 No. *6*
 W1011-0246 2/2

The amount of Entry Fee. . . £ : : } When applied for, *21.8.1903*
 Special £ *15* : : } *18/03*
 Donkey Boiler Fee £ : : } When received, *4.9.03*
 Travelling Expenses (if any) £ : : }

Committee's Minute *Glasgow 31 AUG 1903*

Assigned *+ L.M.C. 8, 03* *b.B.C.*
When fee is paid



Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.

Machinery Certificate
 WRITTEN 5.9.03

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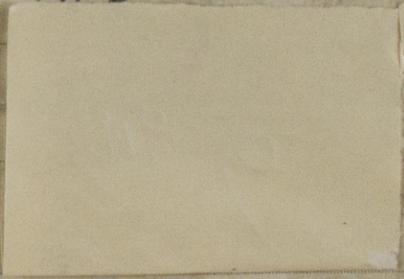
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DAVID & WILLIAM RICHARDSON & CO., Manufacturer.

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It is submitted that this vessel is eligible for THE RECORD + LMC 8. 03. FD. ELEC. LIGHT.

J.M.



The amount of Entry Fee... £ : :
 Special ... £ 15 : :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :
 When applied for, *21.8.1903*
 When received, *4.9.03*

Jos. M. Buchanan,
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow 31 AUG 1903*

Assigned *+ L.M.C. 8, 03* *b. B. C.*
When fee is paid



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 Foundation

Certificate (if required) to be sent to
 (The Surveyors are requested not to write on or before the space for Committee's Minute.)