

REPORT ON MACHINERY.

No. 22609

Port of Glasgow

Received at London Office MAR 21 1905

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No. in Survey held at Glasgow Date, first Survey 11 July 04 Last Survey 11 March 1905
 Reg. Book. on the SS "Craighall" (Number of Visits)
 Master Glasgow Built at Glasgow By whom built D. W. Henderson Tons { Gross Net
 When built 1905
 Engines made at Glasgow By whom made D. W. Henderson & Co. Ltd when made 1905
 Boilers made at Glasgow By whom made D. W. Henderson & Co. Ltd when made 1905
 Registered Horse Power 368 Owners Biggar & Fulton Port belonging to Glasgow
 Nom. Horse Power as per Section 28 368 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple Compound No. of Cylinders 3 No. of Cranks Three
 Dia. of Cylinders 25, 41, 67 Length of Stroke 48" Revs. per minute 79 Dia. of Screw shaft as per rule 14.02 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 ✓ 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 58 1/2"
 Dia. of Tunnel shaft as per rule 12.5 Dia. of Crank shaft journals as per rule 13.15 Dia. of Crank pin 13 1/2" Size of Crank webs 8 1/2" x 17 1/2" Dia. of thrust shaft under collars 13 1/2" Dia. of screw 17'-6" Pitch of screw 17'-0" No. of blades 4 State whether moveable no Total surface 914 sq ft
 No. of Feed pumps 2 Diameter of ditto 4 1/4" Stroke 24" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/4" Stroke 24" Can one be overhauled while the other is at work yes
 No. of Donkey Engines Three Sizes of Pumps 7 x 4 1/2 x 8, 10 1/2 x 3 1/2 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three 3 1/2"
 In Holds, &c. forward four 3 1/2" aft four 3 1/2"
 No. of bilge injections 1 size 5 1/2" Connected to condenser, or to circulating pump pumps 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 no
 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 bilge How are they protected wood casings
 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 before launch Is the screw shaft tunnel watertight yes
 Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.— (Letter for record) Total Heating Surface of Boilers 6160 sq ft Is forced draft fitted no
 No. and Description of Boilers 3 single ended cylindrical Working Pressure 175 lbs Tested by hydraulic pressure to 350 lbs
 Date of test 17/12/04 Can each boiler be worked separately yes Area of fire grate in each boiler 57 3/4 sq ft No. and Description of safety valves to each boiler 1 pair direct opening Area of each valve 6-49 sq in 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 18" Mean dia. of boilers 14'-6" Length 11'-0" Material of shell plates Steel
 Thickness 1 3/32 Range of tensile strength 28/32 Are they welded or flanged no Descrip. of riveting: cir. seams double lap long, seams triple butt
 Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 1/4" Lap of plates or width of butt straps 17 3/4"
 Per centages of strength of longitudinal joint rivets 86.3 Working pressure of shell by rules 177 lbs Size of manhole in shell 16 x 12"
 plate 85.6 Size of compensating ring 30" x 34" No. and Description of Furnaces in each boiler 3 boxes Material Steel Outside diameter 46"
 Length of plain part top 17" Thickness of plates bottom 32" Description of longitudinal joint welded No. of strengthening rings ✓
 Working pressure of furnace by the rules 192 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 39/64 Top 19/32 Bottom 7/8"
 Pitch of stays to ditto: Sides 8 x 8" Back 8 1/2 x 8 1/2" Top 8 x 8 3/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 211 1/8 lbs
 Material of stays Steel Diameter at smallest part 1.41 Area supported by each stay 64 sq in Working pressure by rules 177 lbs End plates in steam space: Material Steel Thickness 63/64 Pitch of stays 16 x 16" How are stays secured 22 x 22 Working pressure by rules 179 Material of stays Steel
 Diameter at smallest part 4.72 Area supported by each stay 255 sq in Working pressure by rules 187 lbs Material of Front plates at bottom Steel Thickness 63/64 Material of Lower back plate Steel Thickness 25/32 Greatest pitch of stays 12 1/2" Working pressure of plate by rules 181 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 1/2" Material of tube plates Steel Thickness: Front 63/64 Back 5/8" Mean pitch of stays 8 3/4"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 184, 176 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 3/4 x 1 double Length as per rule 32 Distance apart 8" Number and pitch of Stays in each three 8"
 Working pressure by rules 194 lbs 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

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?

010741-010404-0657

Lloyd's Register Foundation

DONKEY BOILER— No. _____ Description *iron*

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure _____ test/d by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ 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 _____ 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 _____ 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 _____

Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____

Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *1 set of top end bolts & nuts, 1 set bottom end bolts & nuts, 2 main bearing bolts & nuts, 1 set of coupling bolts & nuts, 1 set of 2nd pump valves, 1 set of edge pump valves, bolts nuts & iron of various sizes, also 1 propeller shaft, 1 thrust shaft, 1 (solid) propeller, 1 eccentric strap*

The foregoing is a correct description,
DAVID & WILLIAM HENDERSON & CO., LIMITED.
A. J. Henderson Manufacturer.
A. J. Henderson Director.

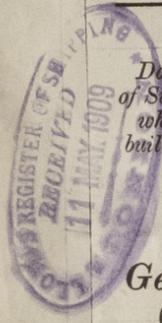
Dates of Survey while building

During progress of work in shops—	1902	July 11, 26	Aug 1, 16, 17	Sept 5, 16	Oct 3, 19, 28	Nov 1, 29, 11, 15, 18, 27
	During erection on board vessel—	24, 30	Dec 6, 8, 15, 17	1905	Jan 9, 12, 16, 17, 27	Feb 1, 10, 21, 24

Total No. of visits *37*

Is the approved plan of main boiler forwarded herewith *yes*

" " " donkey " " " *iron*



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

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.

*In my opinion this machinery is eligible to have notification of **L.M.C. 3.05** in the Register Book.*

It is submitted that this vessel is eligible for **THE RECORD H.L.M.C. 3.05 ELEC LIGHT.**

ms.
21.3.05
21.3.05

Certificate (if required) to be sent to

The amount of Entry Fee. . . £ *3* : : When applied for, *20 MAR 1905*

Special £ *38* : *8* : : *25/10/05*

Donkey Boiler Fee £ : : : When received, *24.3.1905*

Travelling Expenses (if any) £ : : : *24.3.1905*

Glasgow **20 MAR 1905**

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

Committee's Minute
 Assigned *L.M.C. 3.05*



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 Foundation

with fee is paid
 SECURITY CERTIFICATE
 DATED 21/3/05