

Port of Glasgow

Received at London Office JUL 28 1903

No. in Survey held at Glasgow

Date, first Survey 16<sup>th</sup> March Last Survey 10<sup>th</sup> June 1903

Reg. Book.

(Number of Visits 16)

on the S.S. "HAWTHORN."

Tons } Gross

Net

When built 1903

Master \_\_\_\_\_ Built at Greenock By whom built G. Brown & Co.

Engines made at Glasgow By whom made Muir & Houston Ltd. (554) when made 1903

Boilers made at Glasgow By whom made Muir & Houston Ltd. when made 1903

Registered Horse Power \_\_\_\_\_ Owners \_\_\_\_\_ Port belonging to \_\_\_\_\_

Nom. Horse Power as per Section 28 47 Is Refrigerating Machinery fitted No Is Electric Light fitted No

### ENGINES, &c.—Description of Engines Triple expansion—Screw No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 11", 17", 28" Length of Stroke 22" Revs. per minute 115 Dia. of Screw shaft as per rule 6.47" Material of screw shaft iron

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 2' 3"

Dia. of Tunnel shaft as per rule } none Dia. of Crank shaft journals as per rule 5.87" Dia. of Crank pin 6" Size of Crank webs 3 7/8<sup>th</sup> Dia. of thrust shaft under

collars 6" Dia. of screw 8" 2" Pitch of screw 7/8<sup>th</sup> to 9/8<sup>th</sup> No. of blades 4 State whether moveable no Total surface 27 sq. ft.

No. of Feed pumps 1 Diameter of ditto 2 1/2" Stroke 10" Can one be overhauled while the other is at work ✓

No. of Bilge pumps 1 Diameter of ditto 2 1/2" Stroke 10" Can one be overhauled while the other is at work ✓

No. of Donkey Engines one Sizes of Pumps 4" x 3 1/2" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 2" dia. In Holds, &c. One 2" dia.

No. of bilge injections 1 sizes 2 1/2" Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room & size yes 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 none

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks valves + cocks

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock before launch Is the screw shaft tunnel watertight none

Is it fitted with a watertight door ✓ worked from ✓

### BOILERS, &c.— (Letter for record (7)) Total Heating Surface of Boilers 830 sq. ft. Is forced draft fitted no

No. and Description of Boilers One single ended Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs

Date of test 10/6/03 Can each boiler be worked separately ✓ Area of fire grate in each boiler 30 sq. ft. No. and Description of safety valves to

each boiler 2 patent spring Area of each valve 3.14" Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 3' 6" Mean dia. of boilers 10' 6" Length 9' 6" Material of shell plates steel

Thickness 29/32" Range of tensile strength 28 to 32 tons Are they welded or flanged no Descrip. of riveting: cir. seams double long. seams treble

Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 2 1/2" Lap of plates or width of butt straps 1' 5"

Per centages of strength of longitudinal joint rivets 86 Working pressure of shell by rules 183 lbs Size of manhole in shell 16" x 12"

Size of compensating ring McNeil's No. and Description of Furnaces in each boiler 2 plain Material steel Outside diameter 3' 3"

Length of plain part top 5' 10" bottom 5' 6" Thickness of plates crown 29/32" bottom 29/32" Description of longitudinal joint welded No. of strengthening rings 1 partial

Working pressure of furnace by the rules 186 lbs Combustion chamber plates: Material steel Thickness: Sides 5/8" Back 19/32" Top 5/8" Bottom 5/8"

Pitch of stays to ditto: Sides 8" x 8 1/2" Back 8" x 8" Top 7 1/4" x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 190 lbs

Material of stays iron Area at smallest part 2.03" Area supported by each stay 68" Working pressure by rules 224" End plates in steam space:

Material steel Thickness 1 3/16" Pitch of stays 19" x 21" How are stays secured nuts Working pressure by rules 196 lbs Material of stays steel

Area at smallest part 8.47" Area supported by each stay 399" Working pressure by rules 212 lbs Material of Front plates at bottom steel

Thickness 1 1/16" Material of Lower back plate steel Thickness 1 1/16" Greatest pitch of stays 12 1/2" x 8" Working pressure of plate by rules 256 lbs

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

Pitch across wide water spaces 13 1/2" Working pressures by rules 197 lbs Girders to Chamber tops: Material Iron Depth and

thickness of girder at centre 7 1/2" x 2' 3/4" Length as per rule 28 Distance apart 7 1/4" Number and pitch of Stays in each 2 - 8 1/2"

Working pressure by rules 191 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? [2000-7-02-Copyable Ink.]

**DONKEY BOILER**— No. *One* Description *Ordinary Vertical*  
 Made at *Glasgow* By whom made *Muir & Houston Ltd* When made *1903* Where fixed *in stokehold*  
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *6715* Fire grate area *12* <sup>sq ft</sup> Description of safety valves *patent spring*  
 No. of safety valves *one* Area of each *6.49* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *4" 6"* Length *9" 6"* Material of shell plates *steel* Thickness *3/8"* Range of tensile strength *27-32* Descrip. of riveting long. seams *double (lap)* Dia. of rivet holes *15/16"* Whether punched or drilled *drilled* Pitch of rivets *3 1/4"*  
 Lap of plating *5"* Per centage of strength of joint Rivets *96* Thickness of shell crown plates *9/16"* Radius of do. *4" 6"* No. of Stays to do. *none*  
 Dia. of stays. *✓* Diameter of furnace Top *3" 9"* Bottom *4" 0"* Length of furnace *4" 0"* Thickness of furnace plates *1/2"* Description of joint *welded* Thickness of furnace crown plates *17/32"* Stayed by *none* Working pressure of shell by rules *102 lbs*  
 Working pressure of furnace by rules *109 lbs* Diameter of uptake *10"* Thickness of uptake plates *1/2"* Thickness of water tubes *7/16"*

**SPARE GEAR.** State the articles supplied:— *Two top end and two bottom end connectors, rod bolts, two main bearing bolts, one set of coupling bolts, and one set of feed + bilge pump valves, etc.*

The foregoing is a correct description,  
 For **MUIR & HOUSTON, LIMITED.** Manufacturer.  
*James Stewart*

Dates of Survey while building  
 During progress of work in shops— *1903: March 17, 26, 30, 31. April 2, 6, 14, 20, 27. May 9, 13, 20, 25. June 6.*  
 During erection on board vessel— *9, 10*  
 Total No. of s *16*  
 Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *yes*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been constructed under special survey, the materials & workmanship are of good quality, it has been securely fitted on board, tried under steam & found satisfactory. In my opinion, it is eligible to be classed in the Register Book with the record of + L.M.C. 6.03*

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 6.03

*J.S.*  
 29.7.03

The amount of Entry Fee... £ *1* : . . . : When applied for, *27.7.1903*  
 Special . . . . . £ *8* : *0* : } *When received, 30.7.03*  
 Donkey Boiler Fee . . . . . £ *✓* : : }  
 Travelling Expenses (if any) £ *✓* : : }

*J.W. Dunmoor*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow 27 JUL 1903*

Assigned *+ L.M.C. 6.03*  
*When fee is paid*

MACHINERY CERTIFICATE WRITTEN 31-7-03



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