

# REPORT ON MACHINERY.

No. 7221

Port of Leith

Received at London Office THUR 29 JUN 1893

No. in Survey held at Kinghorn

Date, first Survey 12<sup>th</sup> January Last Survey 27<sup>th</sup> June 1893

g. Book.

(Number of Visits 14)

on the Screw Steamer Saturnus

Tons <sup>Gross</sup> 913  
<sub>Net</sub> 566

Master M. de Garter  
1892. 1893.

Built at Kinghorn

By whom built John Scott & Co.

When built 1893.

Engines made at Kinghorn

By whom made John Scott & Co.

when made 1893.

Milers made at Do.

By whom made Do.

when made 1893.

Registered Horse Power 250.

Owners Messrs Macleod Bros.

Port belonging to Leith

Net Horse Power as per Section 28 160

**ENGINES, &c.** — Description of Engines Triple No. of Cylinders 3

Diameter of Cylinders 19 x 31 x 51 Length of Stroke 36 Revolutions per minute 45 Diameter of Screw shaft as per rule 9.1  
as fitted 10.1/4

Diameter of Tunnel shaft as per rule 8.7/4 Diameter of Crank shaft journals 10.1/4 Diameter of Crank pin 10.1/4 Size of Crank webs built  
as fitted 9.3/4

Diameter of screw 11-6" Pitch of screw 15-6" No. of blades 4 State whether moveable no Total surface 41 ft<sup>2</sup>

No. of Feed pumps 2 Diameter of ditto 3" Stroke 21" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 3" Stroke 21" Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps duplex 5.1/4 x 5.1/4 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 2. x 2.1/2. 1 x 3.1/2 In Holds, &c. Holds. 3 x 2.1/2. Tunnel well. 2.1/2.

No. of bilge injections 1 sizes 4" Connected to condenser, or to circulating pump CR. 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 yes

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

Are that 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 while building Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from main deck.

**MILERS, &c.** — (Letter for record S) Total Heating Surface of Boilers 2454 ft<sup>2</sup>

No. and Description of Boilers one: Cyl. double: single ended. Working Pressure 160. Tested by hydraulic pressure to 320.

Date of test 20/5/93. Can each boiler be worked separately - Area of fire grate in each boiler 84 ft<sup>2</sup> No. and Description of safety valves to each boiler two, direct spring. Area of each valve 9.6 Pressure to which they are adjusted 160 lb Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 6" Mean diameter of boilers 15-6"

Length 11-0" Material of shell plates steel Thickness 1.3/8 Description of riveting: circum. seams L., D.R. long. seams D.B.S., T.R.

Diameter of rivet holes in long. seams 1.3/16 Pitch of rivets 8.5/8 x 4.5/16 Lap of plates or width of butt straps 19"

Percentages of strength of longitudinal joint rivets 84.8% Working pressure of shell by rules 200 Size of manhole in end shell 15.1/2 x 11.1/2

Size of compensating ring 24 x 24 x 1.3/8 No. and Description of Furnaces in each boiler 4, one Adams ring Material steel Outside diameter 41"

Length of plain part top 3-10" Thickness of plates bottom 3-10" crown 3/4 Description of longitudinal joint welded. No. of strengthening rings one

Working pressure of furnace by the rules 190 Combustion chamber plates: Material steel Thickness: Sides 5/8 Back 9/16 Top 5/8 Bottom 3/4

Pitch of stays to ditto: Sides 7.3/4 Back 7.1/2 Top 8 x 8.1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 176

Material of stays steel Diameter at smallest part 1.1/4 Area supported by each stay 580 Working pressure by rules 160 End plates in steam space: Material steel Thickness 1.1/16 Pitch of stays 16" How are stays secured D.R.W. Working pressure by rules 208 Material of stays steel

Diameter at smallest part 2.3/8 Area supported by each stay 2560 Working pressure by rules 160 Material of Front plates at bottom steel Thickness 3/4 Material of Lower back plate steel Thickness 3/4 Greatest pitch of stays 11.1/2 Working pressure of plate by rules 160

Diameter of tubes 3.1/2 Pitch of tubes 6.3/4 x 4.9/16 Material of tube plates steel Thickness: Front 3/4 Back 1/16 Mean pitch of stays 9.1/2 x 9.1/4

Pitch across wide water spaces 14.1/2 Working pressures by rules 160 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8.1/2 x 1.1/2 Length as per rule 30.1/2 Distance apart 8.1/2 Number and pitch of Stays in each 3 x 8"

Working pressure by rules 175 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

Plates Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

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

Lloyd's Register Foundation

LT4563-0081

**DONKEY BOILER**— Description *Ordinary vertical 3x tubes.*  
 Made at *Kinghorn* By whom made *John Scott & Co.* When made *1893.* Where fixed *Stokholm*  
 Working pressure *90* tested by hydraulic pressure to *180* No. of Certificate *299* Fire grate area *21.5* Description of safety valves *direct-spring.*  
 No. of safety valves *2* Area of each *3.9* Pressure to which they are adjusted *90* If fitted with casing gear *Yes* If steam from main boilers can enter the donkey boiler *No*  
 Diameter of donkey boiler *6'-0"* Length *10'-0"* Material of shell plates *steel* Thickness *L.D.A.*  
 Description of riveting long. seams *L.D.A.* Diameter of rivet holes *3/16* Whether punched or drilled *D.* Pitch of rivets *3 3/8*  
 Lap of plating *3 3/16* Per centage of strength of joint Rivets *66%* Thickness of shell crown plates *1/16* Radius of do. *flat* No. of Stays to do. *8*  
 Dia. of stays. *2 1/8* Diameter of furnace Top *4'-5"* Bottom *5'-5"* Length of furnace *4'-6"* Thickness of furnace plates *1/2* Description of joint *Lap joint.* Thickness of furnace crown plates *3/4* Stayed by *8 stays as above* Working pressure of shell by rules *99.*  
 Working pressure of furnace by rules *90* Diameter of uptake *14"* Thickness of uptake plates *1/2 iron* Thickness of water tubes *3/8 iron.*

**SPARE GEAR.** State the articles supplied:— *As required by the Rules.*  
*Also the following. Tailshaft, Crank shaft complete, Bores and eight perfect blades, Air and circulating pump rods, one set crank pin and crosshead brass one valve spindle. Air pump discharge valve and seat.*  
 The foregoing is a correct description,  
 Manufacturer. *John Scott & Co.*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *Workmanship materials good.*)  
*The machinery of this vessel has been built under special survey, fitted on board, tried under steam, and is now in safe working condition, and eligible in my opinion to be classed with the notification \* L.M.C. 6-93.*

*It is submitted that this vessel is eligible for THE RECORD + L.M.C. 6-93 - 29/6/93 -*

*W. Dealing & James W. Manion*  
 Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to		
The amount of Entry Fee..	£ 2 : 0 : 0	When applied for,
Special .. .. .	£ 24 : 0 : 0	28 June 93
Donkey Boiler Fee .. . . .	£ : : :	When received,
Travelling Expenses (if any)	£ 3 : 12 : 0	20 June 93

Committee's Minute  
 Assigned  
 FRI 30 JUN 1893  
 + L.M.C. 6, 93



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The Surveys are required not to write on or below the space for Committee's Minute.