

# REPORT ON MACHINERY.

No. 14038

1005. 13 SEP 1904

Port of Greenock.

Received at London Office 19

No. in Survey held at Port Glasgow. Date, first Survey 15<sup>th</sup> April. Last Survey 30<sup>th</sup> Aug<sup>r</sup> 1904

Reg. Book. on the Screw Steamer "Silvia" (Number of Visits 41)

Master                      Built at Port Glasgow. By whom built Glyde Shipby & Eng<sup>r</sup> 6<sup>th</sup> dim<sup>2</sup>. When built 1904.

Engines made at Port Glasgow. By whom made Glyde Shipby & Eng<sup>r</sup> 6<sup>th</sup> dim<sup>2</sup>. when made 1904.

Boilers made at Port Glasgow. By whom made Glyde Shipby & Eng<sup>r</sup> 6<sup>th</sup> dim<sup>2</sup>. when made 1904.

Registered Horse Power                      Owners                      Port belonging to Glasgow

Nom. Horse Power as per Section 28 202 Is Refrigerating Machinery fitted No. Is Electric Light fitted No.

## ENGINES, &c.—Description of Engines Triplic expansion. No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 21 - 33 - 57. Length of Stroke 36 Revs. per minute 40 Dia. of Screw shaft as per rule 11.2 Material of 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 60"

Dia. of Tunnel shaft as per rule 9.2 Dia. of Crank shaft journals as per rule 10.3 Dia. of Crank pin 10.2 Size of Crank webs 7x20 Dia. of thrust shaft under collars 10.2 Dia. of screw 14' 0" Pitch of screw 14' 0" No. of blades 4 State whether moveable No Total surface 60 sq. ft.

No. of Feed pumps 2 Diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 Diameter of ditto 4" Stroke 18" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines Three Sizes of Pumps General 6"x4"x6" Ballast 8"x9"x12" Donkey 4"x22"x4" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four 3" dia. In Holds, &c. Fore Hold: Two 3" dia. Main Hold: Two 3" dia.

After Hold: One 3 1/2" dia & Two 2 1/2" dia. Funnel Well: One 2 1/2" dia.

No. of bilge injections 1 sizes 5" Connected to condenser, or to circulating pump C.P. 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 —

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 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 New vessel Is the screw shaft tunnel watertight Yes.

Is it fitted with a watertight door Yes. worked from Top platform

## BOILERS, &c.— (Letter for record B.) Total Heating Surface of Boilers 3150 sq. ft. Is forced draft fitted No.

No. and Description of Boilers Two Cylind<sup>r</sup> Mult<sup>r</sup> Single Ended. Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs.

Date of test 27/7/04 Can each boiler be worked separately Yes. Area of fire grate in each boiler 57 sq. ft. No. and Description of safety valves to each boiler 2: Steel Spring. Area of each valve 4.06" Pressure to which they are adjusted 165 lbs. Are they fitted with easing gear Yes.

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

Thickness 1 1/2" Range of tensile strength 28-32 tons Are they welded or flanged No. Descrip. of riveting: cir. seams Lap Double long. seams Dble Butt Straps.

Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 4 1/8" 3 9/16" Lap of plates or width of butt straps 1' 6"

Per centages of strength of longitudinal joint rivets 84.9 plate 83.6 Working pressure of shell by rules 160 lbs. Size of manhole in shell 2' 16" x 12"

Size of compensating ring End plate flanged No. and Description of Furnaces in each boiler 3: Doughton's. Material Steel Outside diameter 43"

Length of plain part top 6' 6" Thickness of plates 15" 32" Description of longitudinal joint Weld No. of strengthening rings —

Working pressure of furnace by the rules 161 lbs. Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 1 1/2" Top 9/16" Bottom 5/8"

Pitch of stays to ditto: Sides 8" x 7 1/2" Back 8 1/2" x 8 1/2" Top 7 1/2" x 8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 168 lbs.

Material of stays Steel Diameter at smallest part 1 1/8" Area supported by each stay 72" Working pressure by rules 163 lbs. End plates in steam space:

Material Steel Thickness 7/8" Pitch of stays 16" x 15" How are stays secured Dble Nuts Working pressure by rules 161 lbs. Material of stays Steel

Diameter at smallest part 2 1/8" Area supported by each stay 240" Working pressure by rules 179 lbs. Material of Front plates at bottom Steel

Thickness 1 1/8" Material of Lower back plate Steel Thickness 1 1/8" Greatest pitch of stays 13 1/4" Working pressure of plate by rules 181 lbs.

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

Pitch across wide water spaces 14" Working pressures by rules 194 lbs. 171 lbs. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 3/4" x 1 1/4" Length as per rule 28 1/2" Distance apart 7 3/4" Number and pitch of Stays in each 2: 8"

Working pressure by rules 172 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

009481-009492-0032

Lloyd's Register Foundation

**DONKEY BOILER**— No. *One* Description *Cylinder mult. Single ended with 2 plain furnaces.*  
 Made at *Port Glasgow* By whom made *Clyde Shipbuilding & Engineering Co. Ltd.* When made *2/14/04* Where fixed *on Deck*.  
 Working pressure *90 lb* tested by hydraulic pressure to *180 lb* No. of Certificate *65* Fire grate area *22 sq ft* Description of safety valves *Direct Spring*  
 No. of safety valves *2* Area of each *4.9 sq ft* Pressure to which they are adjusted *92 lb* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *9' 0"* Length *8' 0"* Material of shell plates *Steel* Thickness *3/16"* Range of tensile strength *28-32 tons* Descrip. of riveting long. seams *Lap Double riv.* Dia. of rivet holes *1 1/2"* Whether punched or drilled *Drilled* Pitch of rivets *3 1/2"*  
 Lap of plating *5 3/4"* Per centage of strength of joint *72.5%* Rivets *72.5%* Thickness of shell plates *3/16"* Radios of do. *32"* Pitch No. of Stays *13 1/2 x 1 1/4"*  
 Dia. of stays *1 1/2"* Diameter of furnace *Top 2' 10" Bottom* Length of furnace *5' 4"* Thickness of furnace plates *7/16"* Description of joint *Crown* Thickness of furnace crown plates *7/16"* Stayed by *1 1/8" Stay 9 x 8" 8 x 6" 6 1/2 x 5 1/2" 6 x 6"* Working pressure of shell by rules *92 lb*  
 Working pressure of furnace by rules *106 lb* Diameter of tubes *3"* Thickness of tubes plates *7/16"* Thickness of water tubes *7/16"* Stay *5" width 4 1/2 x 1 1/4"*

**SPARE GEAR.** State the articles supplied:— *Two main Bearing Bolts & nuts, 2 Crank pin Bolts & nuts, 2 Crosshead Bolts & nuts, 1 Set Coupling Bolts & nuts, 1 Set Feed & Sledge pump valves, 1 Propeller, Bolts & nuts of various sizes etc.*

The foregoing is a correct description,

**THE CLYDE SHIPBUILDING & ENGINEERING CO. LIMITED,**

Manufacturer.

*John Muir*

Director.

Dates of Survey while building	During progress of work in shops - - During erection on board vessel - - Total No. of visits	1904. April 15. 21. 25. 26. 28. 29. May 2. 6. 9. 11. 16. 20. 25. 30. 31. June 1. 3.
		9. 10. 14. 17. 21. 23. 28. July 4. 20. 21. 25. 27. Aug 2. 5. 8. 10. 12. 16. 17. 19. 20. 24. 26. 30
		<i>HL</i>

Is the approved plan of main boiler forwarded herewith *Yes.*

" " " donkey " " " *Yes.*

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

*The Engines and Boilers of this vessel have been built under special survey and the materials and workmanship are good. When completed they were examined while running a full power trial in the Firth, and found to work well. The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of **LMC 8,04** marked in the Society's Register Book.*

It is submitted that  
 this vessel is eligible for  
**THE RECORD L.M.C. 8.04**

*HL*  
 13.9.04

*HL*  
 13.9.04

The amount of Entry Fee..	£ 2: . . .	When applied for,
Special ..	£ 30: 2: . . .	1/9/1904
Donkey Boiler Fee ..	£ . . .	When received,
Travelling Expenses (if any) £	. . .	2/9/1904

*Shiff. Eng. Austin*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow 12 SEP 1904*

Assigned

**LMC 8,04**

MACHINERY CERTIFICATE WRITTEN



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Lloyd's Register Foundation

Greenwood

Certificate (if required) to be sent to

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