

# REPORT ON MACHINERY.

No. 5816

(Received at London Office 4th SEP. 82)

No. in Survey held at  
Reg. Book.

Glasgow

Date, first Survey March 23<sup>rd</sup> 1881 Last Survey Sept 3<sup>rd</sup> 1882

on the

G. S. Glen Forbes

Tons 1591

Master Mr. Ellwood

Built at

Glasgow

When built

1882

Engines made at Glasgow

By whom made A. Stephen & Sons when made 1882

Boilers made at do

By whom made do when made 1882

Registered Horse Power 300

Owners Bayzer, Irvine & Co

Port belonging to Glasgow

## ENGINES, &c.—

Description of Engines Compound Inverted Direct acting Surface Condensing.  
Diameter of Cylinders 38" & 68" Length of Stroke 45" No. of Rev. per minute 54 Point of Cut off, High Pressure 9/16" Low Pressure 9/16"  
Diameter of Screw shaft 13" Diameter of Tunnel shaft 12 1/4" Diameter of Crank shaft journals 13" Diameter of Crank pin 13 1/2" size of Crank webs 4 1/2" x 8 1/4"  
Diameter of screw 17-6 Pitch of screw 21-6 No. of blades 4 state whether moveable yes total surface 69 sq ft  
No. of Feed pumps Two diameter of ditto 4 1/2" Stroke 26" Can one be overhauled while the other is at work yes  
No. of Bilge pumps do diameter of ditto 4 1/2" Stroke 26" Can one be overhauled while the other is at work yes  
Where do they pump from Connected to all parts of vessel  
No. of Donkey Engines Two Size of Pumps 5" Burying Where do they pump from Connected to all parts of vessel  
5" pumps 10" stroke

Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes  
No. of bilge injections One and sizes 5" Are they connected to condenser, or to circulating pump Circulating pump.  
How are the pumps worked By levers

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 Main & donkey steam pipes How are they protected Iron casing

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before launching

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Engine room Upper deck

## BOILERS, &c.—

Number of Boilers Two Description Cylindrical multitubular  
Working Pressure 85 lbs Tested by hydraulic pressure to 170 lbs Date of test June 8<sup>th</sup> 1882

Description of ~~superheating apparatus~~ steam chest Horizontal

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately —

No. of square feet of fire grate surface in each boiler 72 sq ft Description of safety valves Direct springs

No. to each boiler Two area of each valve 19.6 sq ins Are they fitted with easing gear yes

No. of safety valves to superheater — area of each valve — are they fitted with easing gear —

Smallest distance between boilers and bunkers or woodwork 10 ins

Diameter of boilers 11-9" Length of boilers 15-0" description of riveting of shell long. seams Welded circum. seams Double rivet

Thickness of shell plates 1 3/8" diameter of rivet holes 1 3/8" whether punched or drilled Drilled pitch of rivets 4 3/4"

Lap of plating 6" per centage of strength of longitudinal joint Weld 70% working pressure of shell by rules 97 lbs

Size of manholes in shell 15 x 11 1/2" size of compensating rings 4 x 5 1/8"

No. of Furnaces in each boiler Four outside diameter 3-7 x 3-3 length, top 5-9 bottom do

Thickness of plates 1/2" steel description of joint Double butt if rings are fitted Not required greatest length between rings —

Working pressure of furnace by the rules 90 lbs

Combustion chamber plating, thickness, sides 7/16" back — top 7/16"

Pitch of stays to ditto sides 7 x 8" back — top 7 x 7"

If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 84 lbs

Diameter of stays at smallest part 1 3/8" screw working pressure of ditto by rules 110 lbs

End plates in steam space, thickness 13/16" pitch of stays to ditto 14 1/2 x 15" how stays are secured Nuts

Working pressure by rules 105 lbs diameter of stays at smallest part 2 3/16" working pressure by rules 100 lbs

Front plates at bottom, thickness 13/16" Back plates, thickness — greatest pitch of stays — working pressure by rules



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Diameter of tubes  $3\frac{1}{4}$ " pitch of tubes  $4\frac{7}{8} \times 4\frac{1}{2}$ " thickness of tube plates, front  $\frac{13}{16}$ " back  $\frac{11}{16}$ "  
How stayed Stay tubes pitch of stays  $15\frac{1}{4} \times 4\frac{1}{2}$ " width of water spaces  $5\frac{1}{4} \times 7$ "  
Diameter of ~~Superheater~~ Steam chest  $3-0$  length  $10-0$   
Thickness of plates  $\frac{7}{16}$ " description of longitudinal joint Lap diameter of rivet holes  $\frac{3}{4}$ " pitch of rivets  $2\frac{1}{2}$ "  
Working pressure of shell by rules  $120\text{ lbs}$  Diameter of flue — thickness of plates —  
If stiffened with rings — distance between rings — Working pressure by rules —  
End plates of ~~superheater~~ steam chest; thickness  $\frac{1}{2}$ " How stayed Stay in centre  $1\frac{3}{4}$ " dia  
Superheater or steam chest; how connected to boiler Double riveted neck.  $15$ " dia

DONKEY BOILER— Description Vertical with cross tubes.  
Made at Glasgow By whom made A. Stephen & Sons when made 1882.  
Where fixed Main deck working pressure  $60\text{ lbs}$  Tested by hydraulic pressure to  $120\text{ lbs}$  No. of Certificate 867.  
Fire grate area  $27\text{ sq ft}$  Description of safety valves Direct spring No. of safety valves Two area of each  $7\text{ sq ins}$   
If fitted with easing gear yes If steam from main boilers can enter the donkey boiler No.  
Diameter of donkey boiler  $7-0$  length  $11-3$  description of riveting Double laps.  
thickness of shell plates  $\frac{1}{2}$ " diameter of rivet holes  $\frac{3}{4}$ " whether punched or drilled Punched.  
pitch of rivets  $2\frac{1}{2}$ " lap of plating  $3\frac{3}{4}$ " per centage of strength of joint 70  
thickness of crown plates  $\frac{9}{16}$ " stayed by Eight stays  $2$ " dia  
Diameter of furnace, top  $5-6$ " bottom  $6-4$ " length of furnace  $5-3$ "  
thickness of plates  $\frac{1}{2}$ " description of joint Lap  
thickness of furnace crown plates  $\frac{1}{2}$ " stayed by Eight stays  $2$ " dia  
Working pressure of shell by rules  $64\text{ lbs}$  working pressure of furnace by rules  $60\text{ lbs}$   $1\frac{1}{8}$  per stay  $13$ " pitch  
diameter of uptake  $1-4$  thickness of plates  $\frac{1}{2}$ " thickness of water tubes  $\frac{3}{8}$ " [from shell to furnace]

The foregoing is a correct description,  
A. C. Stephen & Sons Manufacturer.

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

These engines & boilers have been constructed under special survey they are of good material & workmanship - they have been well fitted on board & satisfactorily tested under steam. I am therefore of opinion that they are eligible to be noted "LLOYD'S M.C." 9-82 in the Register book.

It is submitted that this vessel is eligible to have the notation L.M.C. recorded 19/10/82

The amount of Entry Fee .. £ 3 : 0 : 0 received by me,  
Special .. £ 35 : 0 : 0  
Certificate (if required) .. £ 0 : 0 : 0 19/10/82  
To be sent as per margin. £ 38 : 0 : 0  
(Travelling Expenses, if any, £ )

Committee's Minute 18

Walter E. Polson  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

