

REPORT ON MACHINERY.

Isle No. 114669.
THUR, SEP 24 1896

Port of *Glasgow*
No. in Survey held at *Glasgow & Greenock* Date, first Survey *6 July* Last Survey *19 Sept 1896*
Reg. Book. *Greenock* on the *Greenock* (Number of Vessels *19*)
Master *Spencer* Built at *Glasgow* By whom built *Murdoch & Murray* Tons Gross *414* Net *281*
Engines made at *Glasgow* By whom made *D. R. R. & Son* When built *1896*
Boilers made at *Glasgow* By whom made *D. R. R. & Son* when made *1896*
Registered Horse Power *80* Owners *Margues Braga & Co* Port belonging to *Para*
Nom. Horse Power as per Section 28 *49*

ENGINES, &c.— Description of Engines *Greenock Triple Expansion* No. of Cylinders *Six*
Diameter of Cylinders *10"-16 1/2"-26 1/2"* Length of Stroke *21"* Revolutions per minute *141* Diameter of Screw shaft as per rule *5 1/4"*
Diameter of Tunnel shaft as fitted *5 1/2"* Diameter of Crank shaft journals *5 1/2"* Diameter of Crank pin *6"* Size of Crank webs *11 1/2" x 4"*
Diameter of screws *6"-2 1/2"* Pitch of screw *11"-8 1/2"* No. of blades *Three* State whether moveable *No* Total surface *15 1/2 sq ft*
No. of Feed pumps *One* Diameter of ditto *2"* Stroke *11"* Can one be overhauled while the other is at work *Yes*
No. of Bilge pumps *Two* Diameter of ditto *2"* Stroke *11"* Can one be overhauled while the other is at work *Yes*
No. of Donkey Engines *One* Sizes of Pumps *5 1/4" x 3 1/2" x 5"* No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room *Four - 2"* In Holds, &c. *Six - 2" + 2" to aft Peak*
No. of bilge injections *Two* sizes *2 1/2"* Connected to condenser, or to circulating pump *Pumps* 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 *Yes*
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 *Before launch* Is the screw shaft tunnel watertight *No - tunnel*
Is it fitted with a watertight door *✓* worked from *✓* *Shafting covered by a light cap and access to which is by ladders from deck*

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *1369 sq ft*
No. and Description of Boilers *One - Cylindrical Single Ended* Working Pressure *175 lbs* Tested by hydraulic pressure to *350 lbs*
Date of test *25-6-96* Can each boiler be worked separately *✓* Area of fire grate in each boiler *60 sq ft* No. and Description of safety valves to
each boiler *Two - Direct Spring* Area of each valve *5 1/4 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 *14"* Mean diameter of boilers *13'-0"*
Length *10'-8"* Material of shell plates *Steel* Thickness *5/32"* Description of riveting: circum. seams *Lap Rivet* Long. seams *Butt Rivet*
Diameter of rivet holes in long. seams *1 1/8"* Pitch of rivets *8"* Lap of plates or width of butt straps *17"*
Percentages of strength of longitudinal joint rivets *86 1/2%* Working pressure of shell by rules *180 lbs* Size of manhole in shell *16" x 12"*
Size of compensating ring *6" x 1 1/2"* No. and Description of Furnaces in each boiler *Three - Rurnis* Material *Steel* Outside diameter *41 1/2"*
Length of plain part top *✓* Thickness of plates crown *3/32"* Description of longitudinal joint *None* No. of strengthening rings *Log T. Rings*
bottom *✓* bottom *3/32"* Working pressure of furnace by the rules *184 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *3/32"* Back *1/32"* Top *1/32"* Bottom *1/32"*
Pitch of stays to ditto: Sides *8" x 8"* Back *8" x 8"* Top *8" x 1 1/2"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *190 lbs*
Material of stays *Steel* Diameter at smallest part *1 3/8"* Area supported by each stay *64 sq in* Working pressure by rules *188 lbs* End plates in steam space:
Material *Steel* Thickness *1/4"* Pitch of stays *16" x 1 1/2"* How are stays secured *On Rivets* Working pressure by rules *175 lbs* Material of stays *Steel*
Diameter at smallest part *2 1/2"* Area supported by each stay *240 sq in* Working pressure by rules *204 lbs* Material of Front plates at bottom *Steel*
Thickness *1/4"* Material of Lower back plate *Steel* Thickness *1/4"* Greatest pitch of stays *13 1/4"* Working pressure of plate by rules *178 lbs*
Diameter of tubes *3 1/2"* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *Steel* Thickness: Front *1/4"* Back *23/32"* Mean pitch of stays *9 1/8"*
Pitch across wide water spaces *14 1/2"* Working pressures by rules *181 lbs* Girders to Chamber tops: Material *Iron* Depth and
thickness of girder at centre *8 1/2" x (8 x 2)* Length as per rule *33"* Distance apart *1 1/2"* Number and pitch of Stays in each *Three - 8"*
Working pressure by rules *186 lbs* Superheater or Steam chest; how connected to boiler *✓* 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
of 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

DONKEY BOILER—

Description

Vertical, Steel, Two cross tubes

Made at Stockholm

By whom made

Riley Bros

When made

1896

Where fixed

Stockholm

Working pressure

80 lbs. tested by hydraulic pressure to

160 lbs.

No. of Certificate

1322

Fire grate area

11 sq ft

Description of safety valves

Spring, 2

No. of safety valves

One

Area of each

4 sq ft

Pressure to which they are adjusted

80 lbs.

If fitted with easing gear

Yes

If steam from main boilers

enter the donkey boiler

No

Diameter of donkey boiler

4'-6"

Length

9'-0"

Material of shell plates

Steel

Thickness

Description of riveting long. seams

Lap Double Rivet

Diameter of rivet holes

1/2"

Whether punched or drilled

Punched

Pitch of rivets

Lap of plating

4"

Per centage of strength of joint

Rivets 84

Plates 71

Thickness of shell crown plates

7/8"

Radius of do.

5 ft

No. of Stays to do.

Dia. of stays

1 1/2" effect

Diameter of furnace Top

3'-8"

Bottom

3'-11 1/4"

Length of furnace

3'-9"

Thickness of furnace plates

1 1/2"

Description

joint

Lap Single

Thickness of furnace crown plates

1 1/2"

Stayed by

H. shell crown

Working pressure of shell by rules

Working pressure of furnace by rules

82 lbs

Diameter of uptake

11"

Thickness of uptake plates

3/8"

Thickness of water tubes

SPARE GEAR.

State the articles supplied:—

Two connecting rod bolts & nuts; two piston rod bolts; two main bearing bolts; set coupling bolts; set jack & bilge pump valves; six propeller blades; spare propeller shaft; stem cracks bush; air & vacuum pump valves; iron, nuts &c.

The foregoing is a correct description,

David Rowan & Son Manufacturer.

General Remarks

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

These engines and boilers have been constructed under Special Survey, and are of good workmanship and materials. They have been securely fitted on board, and have been worked satisfactorily under steam.

In our opinion they are eligible for record + L.M.C. 9-96 in the Register Book.

An electric light installation is fitted—See Report on same.

Append are two boiler tracings, and one Forging Report

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 9-96 Elec. Light

J.S.
21.9.96

Certificate (if required) to be sent to

The amount of Entry Fee. £

11 : 14

When applied for,

18/9/96

Special

Donkey Boiler Fee

£

When received,

21/9/96

Travelling Expenses (if any) £

MACHINERY CERTIFICATE

Committee's Minute

FRI. SEP 25 1896

Assigned

+ L.M.C. 9-96
Elec. Light

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