

REPORT ON MACHINERY.

Port of Glasgow & Greenock

TUES. 8 MAR 1898
Received at London Office

No. in Survey held at Glasgow
g. Book.

Date, first Survey 16 June 1897 Last Survey 25 July 18 98
(Number of Visits 70)

on the S.S. Cairnrowan

Tons }
Gross }
Net }
When built 1898

Master Port Glasgow By whom built A. Rodgers & Co

Engines made at Glasgow By whom made Hall Brown & Co when made 1898

Boilers made at " By whom made A. & S. Inglis when made 1898

Registered Horse Power 228 Owners Russell Houston Port belonging to Leith

Net Horse Power as per Section 28 228 250 Is Electric Light fitted No

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

Diameter of Cylinders 22 1/2 34 61 Length of Stroke 42 Revolutions per minute 60 Diameter of Screw shaft 11 1/2
 as per rule 10 3/8 as fitted 11 1/2

Diameter of Tunnel shaft 10 3/8 Diameter of Crank shaft journals 11 1/2 Diameter of Crank pin 11 1/2 Size of Crank webs 4 1/2 x 2 1/4
 as fitted 10 3/8

Diameter of screw 15 9/16 Pitch of screw 10 3/16 No. of blades 4 State whether moveable Yes Total surface 40 sq ft

No. of Feed pumps 2 Diameter of ditto 3 1/2 Stroke 21 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 3 1/2 Stroke 20 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 6 x 4 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps
10 x 10 x 15

Engine Room 5 - 3 1/2 - 3 - 2 1/2 In Holds, &c. 2 in each + 1 aft 3

No. of bilge injections 1 sizes 6 Connected to main to circulating pump Yes 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 None

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

Are the pipes carried through the bunkers None How are they protected By covers

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

Were stern tube, propeller, screw shaft, and all connections examined in dry dock on slip before launch Is the screw shaft tunnel watertight Apparently

Is the tunnel fitted with a watertight door Yes worked from upper platform 3888 See item 9 2 98

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 3196 Is forced draft fitted No

Number and Description of Boilers 2 Multitubular welded Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs

Date of test 5/11/97 Can each boiler be worked separately Yes Area of fire grate in each boiler 53 1/6 No. and Description of safety valves to boiler 2 Direct Spring Area of each valve 5 square Pressure to which they are adjusted 164 lbs Are they fitted with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 10 Mean diameter of boilers 14 1/8

Material of shell plates Steel Thickness 1 3/16 Description of riveting: circum. seams Double lap long. seams Single butt straps

Diameter of rivet holes in long. seams 1 3/16 Pitch of rivets 4 3/4 Lap of plates or width of butt straps 1 1/4

Percentages of strength of longitudinal joint 84 1/6 Working pressure of shell by rules 162 lbs Size of manhole in shell 16" x 12"

No. of compensating rings 2 No. and Description of Furnaces in each boiler 3 plain Material Steel Outside diameter 3'-5"

Thickness of plain part 6 1/2 Thickness of plates 4 9/16 Description of longitudinal joint welded No. of strengthening rings None

Working pressure of furnace by the rules 197 lbs Combustion chamber plates: Material Steel Thickness: Sides 9/16 Back 9/16 Top 9/16 Bottom 1/8

No. of stays to ditto: Sides 4 3/4 Back 4 x 8 Top 4 1/2 x 4 1/2 stays are fitted with nuts or riveted heads Nuts Working pressure by rules 171 lbs

Material of stays Steel Diameter at smallest part 1 1/2 Area supported by each stay 58 Working pressure by rules 196 lbs End plates in steam space: Material Steel Thickness 1 1/16 Pitch of stay 16 1/2 x 15 1/2 How are stays secured Double nuts Working pressure by rules 160 lbs Material of stays Steel

Diameter at smallest part 1 1/4 Area supported by each stay 220 Working pressure by rules 164 lbs Material of Front plates at bottom Steel

Thickness 1 3/16 Material of Lower back plate Steel Thickness 1 3/16 Greatest pitch of stay 23 1/2 x 4 1/2 Working pressure of plate by rules 160 lbs

Diameter of tubes 3 1/2 Pitch of tubes 4 3/8 x 4 1/8 Material of tube plates Steel Thickness: Front 1 3/16 Back 1 3/16 Mean pitch of stays 12"

Clearance across wide water spaces 14 1/2 Working pressures by rules 267 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 4 1/2 x 1" Length as per rule 2'-9" Distance apart 4 3/4 Number and pitch of Stays in each 3 - 9 1/2"

Working pressure by rules 171 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately None

Diameter None Length None Thickness of shell plates None Material None Description of longitudinal joint None Diam. of rivet None

Pitch of rivets None Working pressure of shell by rules None Diameter of flue None Material of flue plates None Thickness None

Are they stiffened with rings None Distance between rings None Working pressure by rules None End plates: Thickness None How stayed None

Working pressure of end plates None Area of safety valves to superheater None Are they fitted with easing gear None

DONKEY BOILER— Description *Multitubular*
 Made at *Glasgow* By whom made *A. Nicholson & Co* When made *1898* Where fixed *On main*
 Working pressure *160 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1225* Fire grate area *20 ft* Description of safety valves *Direct*
 No. of safety valves *2* Area of each *1.9* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boiler
 enter the donkey boiler *No* Diameter of donkey boiler *8 ft* Length *8' 4"* Material of shell plates *Steel* Thickness *9/16"*
 Description of riveting long. seams *Double rivets* Diameter of rivet holes *1 1/8"* Whether punched or drilled *Drilled* Pitch of rivets
 Lap of plating *5/16"* Per centage of strength of joint *88%* Thickness of shell plates *9/16"* Radius of do. *10"* No. of Stays to do. *32*
 Dia. of stays *2"* Diameter of furnace Top *2' 8"* Bottom *2' 4"* Length of furnace *5' 4"* Thickness of furnace plates *3/16"* Descri
 joint *Welded* Thickness of furnace or iron plates *1/16"* Stayed by *Series Stay 1 1/2" dia 8 x 8* Working pressure of shell by rules
 Working pressure of furnace by rules *85 lbs* Diameter of uptake *4"* Thickness of uptake plates *1/16"* Thickness of water tubes *1/16"*

SPARE GEAR. State the articles supplied:— *As required by the Rules*

The foregoing is a correct description,

Manufacturer.

Hall, Brown, Buttery & Co

Dates } During progress of work in shops— } 1894: June 16, 18, 24, 28, July 6, 8, 26, 27, Aug. 3, 5, 5, 13, 16, 17, 17, 20, 23, 23, 24, 27, 30, Sept. 1, 2, 3, 6, 6, 6
 of Survey } During erection on board vessel— } 11, 20, 20, 23, 24, 28, 30, 30, Oct. 1, 5, 8, 8, 11, 14, 15, 21, 25, 27, 29, Nov. 5, 8, 14, 23, 25, 27, Dec. 4, 10, 18, Jan. 21, 31, Feb.
 building } Total No. of visits } *Seventy*

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

The engines & boilers of this vessel have been under special survey, the materials & workmanship of good description, they have been well fitted on board & tried under steam.

In our opinion the machinery of this vessel is eligible to have notification **L.M.C. 2, 98** in the register book.

A photo print of the main & donkey boilers & a forging report on herts appended.

It is submitted that this vessel is eligible for THE RECORD, **L.M.C. 2, 98**

E.S. 8/3/98
 8.3.98

The amount of Entry Fee... £ *32 10*
 Special... £ *41 8*
 Donkey Boiler Fee... £ *2 2*
 Travelling Expenses (if any) £

When applied for, *5.3.98*
 not received, *31.3.98*

James Hollison & A. McKeen
 Engineer Surveyor to Lloyd's Register of British & Foreign Steamships

Committee's Minute

TUES. 8 MAR 1898

Assigned

L.M.C. 2, 98



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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.