

# REPORT ON MACHINERY.

No. 13992

Port of Glasgow

MON. 14 OCT 1895

Received at London Office

No. in Survey held at Glasgow  
Reg. Book.

Date, first Survey 21<sup>st</sup> Feb 95 Last Survey 4<sup>th</sup> October 1895  
(Number of Visits 1)

on the S. S. Langbank

Tons { Gross  
Net

Master

Built at Port Glasgow By whom built Russell & Co

When built 1895

Engines made at

Glasgow By whom made Dunsmuir & Jackson when made 1895

Boilers made at

Glasgow By whom made Dunsmuir & Jackson when made 1895

Registered Horse Power

Owners

Port belonging to Liverpool

Nom. Horse Power as per Section 28 350

ENGINES, &c. — Description of Engines Triple expansion inverted direct acting No. of Cylinders three

Diameter of Cylinders 32", 40", 68" Length of Stroke 48" Revolutions per minute 40 Diameter of Screw shaft 12 3/4"  
as per rule 12 3/4" as fitted 13 1/2"

Diameter of Tunnel shaft 12 3/8" Diameter of Crank shaft journals 13 5/8" Diameter of Crank pin 13 1/4" Size of Crank webs 20", 8 1/2"  
as per rule 12 3/8" as fitted 12 3/8"

Diameter of screw 17' 0" Pitch of screw 17' 6" No. of blades four State whether moveable no Total surface 81 sq. ft.

No. of Feed pumps two Diameter of ditto 3 3/4" Stroke 27 Can one be overhauled while the other is at work yes

No. of Bilge pumps two Diameter of ditto 4 1/2" Stroke 27 Can one be overhauled while the other is at work yes

No. of Donkey Engines four Sizes of Pumps Duplex 7", 5 1/2", 6" and 4 1/2", 2 1/2" x 4" No. and size of Suctions connected to both Bilge and Donkey pumps Ballas double acting 7", 9 1/2" x 10"

In Engine Room Three 3 1/2" In Holds, &c. Four 3 1/2" in forward hold

Three 3 1/2" in aft hold

No. of bilge injections one sizes 6 1/2" Connected to condenser, or to circulating pump no 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 except main circulation discharge

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 forward hold bilge pipes How are they protected Cased in

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 23<sup>rd</sup> Oct 95 Is the screw shaft tunnel watertight apparently

Is it fitted with a watertight door yes worked from upper platform

BOILERS, &c. — (Letter for record S) Total Heating Surface of Boilers 5731 sq. ft.

No. and Description of Boilers Three single ended Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs

Date of test 4, 5, 6, 7<sup>th</sup> Sept 95 Can each boiler be worked separately yes Area of fire grate in each boiler 552 sq. ft. No. and Description of safety valves to each boiler two spring loaded

Area of each valve 4.91 sq. in. Pressure to which they are adjusted 205 lbs. Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork stand clear Mean diameter of boilers 159"

Length 11' 0" Material of shell plates Steel Thickness 1 1/16" Description of riveting: circum. seams lap 2 Rivets long. seams Double butt 5 Rivets

Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 21" x 1 1/2"

Per centages of strength of longitudinal joint rivets 88.4 Working pressure of shell by rules 224 lbs. Size of manhole in shell 12" x 16" plate 84.8

Size of compensating ring In Neils No. and Description of Furnaces in each boiler Three Morrison Material Steel Outside diameter 41"

Length of plain part top 7.10" bottom 7.10" thickness of plates top 19/32 bottom 3/16 Description of longitudinal joint Weld No. of strengthening rings Carrugations

Working pressure of furnace by the rules 230 lbs Combustion chamber plates: Material Steel Thickness: Sides 19/32" Back 7/16" Top 7/8" Sides 15/16" Bottom 15/16"

Pitch of stays to ditto: Sides 7 3/4" Back 7 3/8" Top 7 3/4" x 8 3/16" stays are fitted with nuts or riveted heads Nuts Working pressure by rules approved

Material of stays Steel Diameter at smallest part 1 1/8" Area supported by each stay 60 sq. in. Working pressure by rules approved End plates in steam space:

Material Steel Thickness 1 1/16" Pitch of stays 18 x 18 1/2" How are stays secured Double nuts Working pressure by rules 295 lbs Material of stays Steel

Diameter at smallest part 7.54" Area supported by each stay 333 sq. in. Working pressure by rules 202 lbs Material of Front plates at bottom Steel

Thickness 3/16" Material of Lower back plate Steel Thickness 1/16" Greatest pitch of stays 15" Working pressure of plate by rules approved

Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 7/8" Material of tube plates Steel Thickness: Front 13/16" Back 7/8" Mean pitch of stays 9 3/8"

Pitch across wide water spaces 14 1/2" Working pressures by rules 315, 215 lbs Girders to Chamber tops: Material Iron Depth and thickness of girder at centre 7 1/2" x 2 x 1" Length as per rule 26 1/2" Distance apart 8 3/16" Number and pitch of Stays in each 2 x 7 3/4"

Working pressure by rules 248 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

**DONKEY BOILER**— Description *See Supplementary report*  
 Made at *Glasgow* By whom made *J. & W. Jackson* When made *1895* Where fixed in *Deck house*  
 Working pressure tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of safety valves \_\_\_\_\_  
 No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_  
 Diameter of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_  
 Description of riveting long. seams \_\_\_\_\_ Diameter of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_  
 Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of Stays to do. \_\_\_\_\_  
 Dia. of stays \_\_\_\_\_ Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— *As required by the rules, also one propeller and safety valve springs*

The foregoing is a correct description, *See Supplementary Report.*  
 Manufacturer. *J. & W. Jackson*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *These engines and boilers have been built under the conditions of special survey, they have been securely fitted on board and satisfactorily tested under steam. The material and workmanship are good. In my opinion this vessel is eligible for the record + L.M.C. 10.95.*

I beg to draw attention to the sizes of the safety valves of the main boiler their total area amounts to 0.178 sq. inch per square foot of grate surface.

It has been pointed out to the builders that unless a draincock is fitted to the main steam pipe that there is danger of a mishap if the stop valves are carelessly opened, and they have sent instructions to the engineer to have a draincock fitted. The Cardiff Surveyors have been advised.

It is submitted that this vessel is eligible for **THE RECORD** + L.M.C. 10.95. subject to a drain cock being fitted to the main steam pipe. The Colombo Surveyor to be advised.

*J.S.*  
 18.10.95.

Certificate (if required) to be sent to \_\_\_\_\_  
 The amount of Entry Fee.. £ 3 : " : WRITTEN applied for, \_\_\_\_\_  
 Special .. .. £ 34 : 10 : " 9/10/95  
 Donkey Boiler Fee .. .. £ " : " : " \_\_\_\_\_  
 Travelling Expenses (if any) £ " : " : " When received, 10/10/95

*C. J. Brownlee*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 18 OCT 1895**  
 Assigned *+ L.M.C. 10.95 subject*

**FRI. 1 NOV 1895**

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

