

# REPORT ON MACHINERY. *Continued.*

Port of Glasgow

Received at London Office **THUR, 12 JAN 1899**

No. in Survey held at Glasgow Date, first Survey 10 Sept 97 Last Survey 9 Jan 1899  
Reg. Book. (Number of Visits 74)

on the Iron screw steamer "Onra" Tons { Gross 891.75  
Net 463.74

Master Built at Glasgow By whom built Fairfield Shipbuilding Co. Ltd. When built 1898

Engines made at Glasgow By whom made Fairfield Shipbuilding Co. Ltd. when made 1898

Boilers made at Glasgow By whom made Fairfield Shipbuilding Co. Ltd. when made 1898

Registered Horse Power Owners Port belonging to Glasgow

Nom. Horse Power as per Section 28 Is Electric Light fitted Yes

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

Diameter of Cylinders Length of Stroke Revolutions per minute Diameter of Screw shaft as per rule as fitted

Diameter of Tunnel shaft as per rule as fitted Diameter of Crank shaft journals Diameter of Crank pin Size of Crank webs

Diameter of screw Pitch of screw No. of blades State whether moveable Total surface

No. of Feed pumps Diameter of ditto Stroke Can one be overhauled while the other is at work

No. of Bilge pumps Diameter of ditto Stroke Can one be overhauled while the other is at work

No. of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room In Holds, &c.

No. of bilge injections sizes Connected to condenser, or to circulating pump Is a separate donkey suction fitted in Engine room & size

Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible

Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the discharge pipes above or below the deep water line

Are they each fitted with a discharge valve always accessible on the plating of the vessel Are the blow off cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers How are they protected

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

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Is the screw shaft tunnel watertight

Is it fitted with a watertight door worked from

**BOILERS, &c.**— (Letter for record \$.) Total Heating Surface of Boilers Is forced draft fitted Yes

No. and Description of Boilers Three Horizontal Steam Boilers Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs

Date of test 2/16/98 Can each boiler be worked separately Yes Area of fire grate in each boiler 702 No. and Description of safety valves to each boiler Two Direct Spring Area of each valve 10.32 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork About 17" Mean diameter of boilers 16' 10"

Length 41' 0" Material of shell plates Steel Thickness 1 1/4" Description of riveting: circum. seams Double Butt Straps long. seams Double Butt Straps

Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10" Top of plates or width of butt straps 20 1/2"

Per centages of strength of longitudinal joint rivets 85% Working pressure of shell by rules 206 lbs Size of manhole in shell 20" x 16"

Size of compensating ring Double Flange Ring No. and Description of Furnaces in each boiler with three tubes Material Steel Outside diameter 42"

Length of plain part top 37.9" bottom 37.6" Thickness of plates crown 3 3/4" bottom 3 1/4" Description of longitudinal joint Welded No. of strengthening rings 4

Working pressure of furnace by the rules 186 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 3/4"

Pitch of stays to ditto: Sides 7/8 x 7/8" Back 7/8 x 7/8" Top 7/8 x 7/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 202 lbs

Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 54" Working pressure by rules 191 lbs End plates in steam space: Material Steel Thickness 1 1/4" Pitch of stays 14" How are stays secured Double Nut Working pressure by rules 241 lbs Material of stays Steel

Diameter at smallest part 2 5/8" Area supported by each stay 211" Working pressure by rules 198 lbs Material of Front plates at bottom Steel Thickness 3/4" Material of Lower back plate Steel Thickness 5" Greatest pitch of stays 12" Working pressure of plate by rules 216 lbs

Diameter of tubes 2 1/2" Pitch of tubes 7/8 x 7/8" Material of tube plates Steel Thickness: Front 7/8" Back 7/8" Mean pitch of stays 9.6"

Pitch across wide water spaces 10 1/2" Working pressures by rules 210 lbs 154 lbs Girders to Chamber tops: Material Iron Depth and thickness of girder at centre 8 x 13" Length as per rule 29 1/2" Distance apart 7" Number and pitch of Stays in each 2 x 7 1/2"

Working pressure by rules 189 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

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



**DONKEY BOILER**— Description \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 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:— *Four Connecting Rod top end Bolts, 2 Connecting Rod bottom end bolts, 2 Main Bearing Bolts, 1 set Coupling Bolts, 2 Eccentric Shafts, puller & Rods complete, 2 propeller blades, 1 set Studs nuts & set pins for propeller blades, 2 sets and pump valves, 8 steel pump valves seats, 8 sets pump valves seats, 2 set Safety valve Springs, 200 condenser tubes, 50 plain bored tubes, 10 stay tubes, 1 set valves complete for the main pump, also a large assortment of Bolts, nuts & other spare gear.*  
 The foregoing is a correct description,  
 Manufacturer: \_\_\_\_\_

THE FAIRFIELD SHIPBUILDING AND ENGINEERING CO., LIMITED  
 Dates of Survey while building: During progress of work in shops \_\_\_\_\_  
 During erection on board vessel \_\_\_\_\_  
 Total No. of visits \_\_\_\_\_  
 SECRETARY: \_\_\_\_\_

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

**ENGINES**—Length of stern bush \_\_\_\_\_ Diameter of crank shaft journals \_\_\_\_\_ as per rule \_\_\_\_\_ Diameter of thrust shaft under collars \_\_\_\_\_ as fitted \_\_\_\_\_  
**BOILERS**—Range of tensile strength \_\_\_\_\_ Are they welded or flanged \_\_\_\_\_ **DONKEY BOILERS**—No. \_\_\_\_\_ Range of tensile strength \_\_\_\_\_  
 Is the approved plan of main boiler forwarded herewith \_\_\_\_\_ Is the approved plan of donkey boiler forwarded herewith \_\_\_\_\_

**Electric Light Installation:** A large number of the lights and fittings have not yet been completed. I am informed that this work will be finished in London. Messrs H. H. Allen & Co are fitting the installation.

**Refrigerating Machinery:**— The vessel is fitted with two Refrigerating machines on the Haslam System. The fittings of these are practically complete, but no spare gear has yet been supplied.

It is intended to insulate No 2 & 3 Holds. The insulation in No 3 Hold is nearly completed but the air passages have still to be put up. Except the fitting of the "Grounds" nothing has been done to the insulation in No 2 Hold. I am informed this work will be completed in London.

Certificate (if required) to be sent to \_\_\_\_\_  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee. . . £ 3 : . . . When applied for, \_\_\_\_\_  
 Special . . . £ 108 : 18 : . . . 30/10/98  
 Donkey Boiler Fee . . . £ : : . . . When received, \_\_\_\_\_  
 Travelling Expenses (if any) £ : : . . . 11/11/98

Wm. Austin  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute \_\_\_\_\_  
 Assigned \_\_\_\_\_  
 FEB 20 JAN 1899

