

# REPORT ON MACHINERY.

Received at London Office **TUESDAY 22 SEPT 1885**

No. 4116

No. in Survey held at Glasgow Date, first Survey 18<sup>th</sup> March Last Survey 19<sup>th</sup> Sept 1885  
 Reg. Book. 454 on the S.S. Glenlyon (Number of Vests 30) Tons 1411  
 Master Commers Built at Glasgow By whom built London & Glasgow C<sup>o</sup> L<sup>d</sup> When built 1872  
 Engines made at Glasgow By whom made London & Glasgow C<sup>o</sup> L<sup>d</sup> when made 1872  
 Boilers made at Do By whom made Do when made 1885  
 Registered Horse Power 275 Owners M<sup>r</sup> Gregor Gow & Co Port belonging to Glasgow

**ENGINES, &c.—**

Description of Engines Inverted direct acting - Compound - Surface Condensing  
 Diameter of Cylinders 40 + 70 Length of Stroke 45 No. of Rev. per minute 50 Point of Cut off, High Pressure — Low Pressure —  
 Diameter of Screw shaft — Diam. of Tunnel shaft — Diam. of Crank shaft journals 13 Diam. of Crank pin — size of Crank webs —  
 Diameter of screw 174 Pitch of screw 21-6 No. of blades Four state whether moveable Yes total surface —  
 No. of Feed pumps Two diameter of ditto 6 Stroke 15 Can one be overhauled while the other is at work —  
 No. of Bilge pumps Two diameter of ditto 8 Stroke 12 1/2 Can one be overhauled while the other is at work —  
 Where do they pump from Engine room bilges & holds  
 No. of Donkey Engines One Size of Pumps 1 1/2 pump of 5" diameter Where do they pump from Sea, bilges & hotwell  
 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 —  
 No. of bilge injections — and sizes — Are they connected to condenser, or to circulating pump —  
 How are the pumps worked —  
 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 accessible at all times —  
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection 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 — and fitted with a sluice door — worked from —

**BOILERS, &c.—**

Number of Boilers Two Description Cylindrical - Mult<sup>l</sup> Whether Steel or Iron Steel except superheater  
 Working Pressure 75 lbs Tested by hydraulic pressure to 150 lbs Date of test June 18<sup>th</sup> 1885  
 Description of superheating apparatus or steam chest Horizontal  
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately No  
 No. of square feet of fire grate surface in each boiler 99 Description of safety valves Direct springs No. to each boiler Two  
 Area of each valve 25.96 sq in 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 15" Diameter of boilers 12-1"  
 Length of boilers 10-1 3/8 description of riveting of shell long. seams Butt double circum. seams Lap double Thickness of shell plates 5/8"  
 Diameter of rivet holes 15/16 whether punched or drilled Drilled pitch of rivets 4 1/8" Lap of plating 11 x 5/8" butt straps  
 Per centage of strength of longitudinal joint 77 working pressure of shell by rules 83 lbs size of manholes in shell 12 x 16  
 Size of compensating rings Riveted ring No. of Furnaces in each boiler Six  
 Outside diameter 37" length, top 6-2 1/2 bottom 8-0 thickness of plates 1/2" description of joint Butt + weld if rings are fitted Yes  
 Greatest length between rings 5-9 working pressure of furnace by the rules 100 lbs combustion chamber plating, thickness, sides 7/16" back 7/16" top 7/16"  
 Pitch of stays to ditto, sides 8 1/2" back 8 1/2" top 8 x 8 1/2" If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 106 lbs Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 100 lbs end plates in steam space, thickness 1/4"  
 Pitch of stays to ditto 15" how stays are secured Nuts working pressure by rules 75 lbs diameter of stays at smallest part 2 1/8" working pressure by rules 96 lbs Front plates at bottom, thickness 5/8" Back plates, thickness —  
 Greatest pitch of stays — working pressure by rules — Diameter of tubes 3 1/2" pitch of tubes 4 3/4" thickness of tube plates, front 7/16" back 5/8" how stayed Tubes pitch of stays 14 1/2" width of water spaces 4 to 6"  
 Diameter of Superheater or Steam chest 4-3 length 17-0 thickness of plates 9/16" description of longitudinal joint Lap double diam. of rivet holes 15/16"  
 Pitch of rivets 3 1/4" working pressure of shell by rules 130 lbs diameter of flue — thickness of plates — If stiffened with rings —  
 Distance between rings — working pressure by rules — end plates of superheater, or steam chest; thickness 5/8" how stayed Ends drilled  
 & gusset stays 11 x 1 1/2" Superheater or steam chest; how connected to boiler By Iron neck 16" dia x 3/4" thick

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**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 \_\_\_\_\_ if fitted with easing gear \_\_\_\_\_ if steam from main boilers can enter the donkey boiler \_\_\_\_\_ diameter of donkey boiler \_\_\_\_\_ length \_\_\_\_\_ description of riveting \_\_\_\_\_

Thickness of shell plates \_\_\_\_\_ diameter of rivet holes \_\_\_\_\_ whether punched or drilled \_\_\_\_\_ pitch of rivets \_\_\_\_\_ lap of plating \_\_\_\_\_

per centage of strength of joint \_\_\_\_\_ thickness of crown plates \_\_\_\_\_ stayed by \_\_\_\_\_

Diameter of furnace, top \_\_\_\_\_ bottom \_\_\_\_\_ length of furnace \_\_\_\_\_ thickness of 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 plates \_\_\_\_\_ thickness of water tubes \_\_\_\_\_

SPARE GEAR. State the articles supplied:—

*This is submitted to the Registrar of Shipping & is eligible to be entered in the Register of 1385 and 1386*

*Walter E. Robson*

The foregoing is a correct description,  
 from the London & Glasgow Engineering & Shipbuilding Co. Ltd. Manufacturers of Main Boilers  
 17, Abchurch Lane

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

The new main boilers of this vessel, particulars of which are here given, have been constructed under special survey, they are of good material & workmanship, they have been satisfactorily fitted on board & tested under steam. Appended hereto is the approved tracing of these boilers & plate links. The whole of the machinery has been opened out for survey & repairs and there were examined the cylinders, slide valves, pistons, pumps, crankshaft & shafting, condenser &c.

When the vessel was in Dry dock the sea cocks, valves & connections were all examined & those in hold of ship's bottom removed to bilges in an accessible position. Propeller & shaft removed. outer bearing in stern tube fitted with wood. Two new blades fitted to propeller. All bilge pipes overhauled and one extra suction fitted in aft hold.

The following repairs have been carried out.  
 New expansion valves & back plates. H.P. valve & spindle. New bottom brass tube plate in condenser. old one of cast iron cut out. Thrust shaft removed to shop & turned up in lathe. Thrust rings refitted to block and white metal faces attached. New go-astern eccentric sheave fitted to H.P. engine.  
 The old donkey boiler has been removed and the one now fitted on board has lately been repaired in London. See report attached.  
 Steam raised in main & donkey boilers & safety valves adjusted to 75 & 40 lbs respectively.

I am of opinion the machinery of this vessel is now in good & safe working condition & eligible to be placed  
 L.M.C. 9-85. + N.B. 85. in the Register Book. Pressure 75 lbs.

The amount of Entry Fee £ 5 : 5 : ✓ received by me,  
 Special .. £ 5 : 5 : ✓  
 Donkey Boiler Fee .. £ 10 : 10 : ✓  
 Certificate (if required) .. £ 5 : 5 : ✓ 21/9/1885  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ \_\_\_\_\_)

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

Committee's Minute TUESDAY 22 SEPT 1885

+ N.B. 85

