

REPORT ON MACHINERY.

11201

No. **11201** Port of **Glasgow** Received at London Office **17 JAN. 92**
 No. in Survey held at **Glasgow** Date, first Survey **14th Oct^r 1890** Last Survey **Dec^r 29th 1891**
 Reg. Book. **S. S. Dilwara** (Number of Visits **46**)
 on the **S. S. Dilwara** Tons { Gross **5441**
 Master **A. Morris** Built at **Glasgow** By whom built **A. & J. Inglis** Not **3514**
 Engines made at **Glasgow** By whom made **A. & J. Inglis** when made **1891**
 Boilers made at **Do** By whom made **Do** when made **1891**
 Registered Horse Power **700** Owners **British India Associated Steamers** Port belonging to **Glasgow**
 Rule **609**

ENGINES, &c.—

Description of Engines **Inverted Direct Acting Triple Expansion** No. of Cylinders **Three**
 Diam. of Cylinders **33, 52, 86** Length of Stroke **60** Rev. per minute **65** Point of Cut off, High Pressure **.75** Low Pressure **.6**
 Diameter of Screw shaft **17 7/8** Diam. of Tunnel shaft **16 1/2** Diam. of Crank shaft journals **17 1/4** Diam. of Crank pin **17 1/4** size of Crank webs **13 x 23 1/2**
 Diameter of screw **18-6** Pitch of screw **25-0** No. of blades **Four** state whether moveable **Yes** total surface **104 sq ft**
 No. of Feed pumps **Two** diameter of ditto **4** Stroke **28** Can one be overhauled while the other is at work **Yes**
 No. of Bilge pumps **Two** diameter of ditto **5** Stroke **28** Can one be overhauled while the other is at work **Yes**
 Where do they pump from **Engine & boiler space & Holds**
 No. of Donkey Engines **Two** Size of Pumps **one double 10" x 8" pump x 24" stroke. Double Acting. Where do they pump from Two pump from Holdwell & sea. One pumps from sea, bilges & holds.**
 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 **Two** and sizes **6" dia** Are they connected to condenser, or to circulating pump **Circulating**
 How are the pumps worked **By levers from crosshead of Aft & Intermediate engines.**
 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 **Forward** How are they protected **Wood casing**
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times **Yes**
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges **Yes**
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock **Before launching**
 Is the screw shaft tunnel watertight **Yes** and fitted with a sluice door **Yes** worked from **Engine room platform at deck**

BOILERS, &c.—

No. of Boilers **Three** Description **Cylindrical** Material **Steel** Letter (for record) **S**
 Working Pressure **170 lbs.** Tested by hydraulic pressure to **340 lbs.** Date of test **October 5th 1891**
 Description of ~~superheating apparatus~~ or steam chest **Cylindrical Horizontal**
 Can each boiler be worked separately **Yes** Can the superheater be shut off and the boiler worked separately **✓**
 No. of square feet of fire grate surface in each boiler **104 sq ft** Description of safety valves **Direct spring** No. to each boiler **Two**
 Area of each valve **11 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 **No side bunkers** Diameter of boilers **13-8**
 Length of boilers **16-9** description of riveting of shell long. seams **Butt three rows** circum. seams **Lap tieble** Thickness of shell plates **1 5/16**
 Diameter of rivet holes **1 13/32** whether punched or drilled **Drilled** pitch of rivets **8 1/4 & 4 1/8** Lap of plating **2 1/8**
 Percentage of strength of longitudinal joint **83** working pressure of shell by rules **174.8 lbs** size of manholes in shell **16 x 12**
 Size of compensating rings **Angle 7 x 1** No. of Furnaces in each boiler **Six** Description of Furnaces **Purvis patent ribbed**
 Outside diameter **43** length **6-10 1/2** thickness of plates **9/16** description of joint **Weld** if rings are fitted **✓**
 Greatest length between rings **✓** working pressure of furnace by the rules **188 lbs** combustion chamber plating, thickness, sides **9/16** back **✓** top **9/16**
 Pitch of stays to ditto, sides **7 1/2 x 7 1/2** back **✓** top **7 1/4 x 7 1/2** If stays are fitted with nuts or riveted heads **Nuts** working pressure of plating by rules **172 lbs** Diameter of stays at smallest part **1 1/2** working pressure of ditto by rules **210 lbs** end plates in steam space, thickness **13/16** with drilling **10 x 13/16**
 Pitch of stays to ditto **14 1/2 x 14 1/2** how stays are secured **Nuts** working pressure by rules **170 lbs** diameter of stays at smallest part **2 1/2** working pressure by rules **170 lbs** Front plates at bottom, thickness **7/8** Back plates, thickness **✓**
 Greatest pitch of stays **✓** working pressure by rules **✓** Diameter of tubes **3 1/2** pitch of tubes **4 5/8** thickness of tube plates, front **7/8** back **7/8** how stayed **Yubes** pitch of stays **13 1/2 x 9 1/4** width of water spaces **6**
 Diameter of Superheater or Steam chest **36** length **one 14-0** thickness of plates **9/16** description of longitudinal joint **Lap double diam.** diam. of rivet holes **7/8**
 Pitch of rivets **3 3/8** working pressure of shell by rules **180 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 **13/16** how stayed **Four stays 2 1/2" dia**
 Superheater or steam chest; how connected to boiler **Each furnace one 16" x one 12" dia. I think - welded.**

[142—L.R.P.H.—2400—Form No. 8—Copyright Ink.]

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DONKEY BOILER— Description *Cylindrical - Muller*
 Made at *Glasgow* by whom made *A & J Inglis* when made *1891* where fixed *In Stockhold*
 Working pressure *170lb* tested by hydraulic pressure to *340lb* No. of Certificate *3108* fire grate area *25 sqft* description of safety valves *Direct pump*
 No. of safety valves *Two* area of each *3.9 sq in* if fitted with easing gear *Yes* if steam from main boilers can enter the donkey boiler *No*
 diameter of donkey boiler *9-0"* length *7-0"* description of riveting *Butt* *two rows*
 Thickness of shell plates *29/32"* diameter of rivet holes *1 3/32"* whether punched or drilled *Drilled* pitch of rivets *5 1/2 x 2 3/4"* lap of plating *11 5/8"*
 per centage of strength of joint *80* thickness of *end* plates *13/16"* stayed by *2 1/2 stays* *14* pitch.
 Diameter of furnace, top *34"* bottom *✓* length of furnace *4-10"* thickness of plates *17/32"* description of joint *Weld*
 Thickness of *comb cham* furnace *plates* *17/32"* stayed by *1 1/2 stays* *7 x 7 1/2* pitch working pressure of shell by rules *174 lb*
 Working pressure of furnace by rules *190 lb* diameter of *water tubes* *2 3/4"* thickness of plates *13/16"* *11/16"* thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *The third crank shaft - Propeller shaft - 14 studs with for propeller - the crank pin brass - 2 span frames for piston crosshead - 2 connecting rod bolts with for bottom ends - 4 ditto for top ends - 9 crankshaft & 9 tunnel shaft coupling bolts with - 2 main bearing bolts with - one air & one circulating pump rod - One set of metallic valves for air pump - One set of india rubber valves for circulating pump - The foregoing is a correct description, 6 feed pump valves & seats - 4 bilge pump valves & seats - 6 feed valves on boiler - 4 cyl escape springs - valve spindles*
A & J Inglis Manufacturers

General Remarks (State quality of workmanship, opinions as to class, &c. for intermediate & low-pressure valves.)
One bucket with 7 valves for air pump - One head valve & seven valves for air pump - One set of valves for auxiliary feed pump - 2 feed valve springs - 4 main safety valve springs & 1 for donkey boiler - 2 eccentric chap liners - 2 bolts for ditto - 4 bolts for top end eccentric rod - 20 condenser tubes & 50 ferrules - 2 rings for H.P. piston valve - 18 studs for cylinder covers - 12 studs for easing covers - 20 studs for condenser doors - 12 studs for piston rod stuffing boxes - 6 studs for air & circulating pump covers - 12 brass studs for air pump - 100 bolts, nuts & washers assorted - 24 joint ring bolts with - One set of springs for each piston - 2 quadrant block bolts with & four braces - 4 main boiler tubes & five stay tubes - 5 plain tubes for donkey boiler - One set of furnace bars for each boiler - 1 wt of white metal - 1 bar chisel steel - 6 bars of iron assorted & 6 plates - 4 pairs cotton packing & ring for condenser tubes - 2 propeller blades -

These engines & boilers have been constructed under special survey - They are of good material & workmanship - They have been well fitted on board - satisfactorily tested under steam - and I am of opinion they are eligible to be classed + L.M.C. 12-91 in the Register Book.

Appended hereto are two reports on forgings also the approved tracing of main boilers.

MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to
 The amount of Entry Fee .. £ *3* : : : received by me,
 Special .. £ *50* : *9* : :
 Donkey Boiler Fee .. £ : : :
30/12/1891

(Travelling Expenses, if any, £)

Committee's Minute

TUES. 5 JAN 1892

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

W. E. Robson

*+ L.M.C. 12-91
 W.A. 1-1-92*

+ L.M.C. 12.91



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