

# REPORT ON MACHINERY.

TUES. 14 AUG 1890

Port of

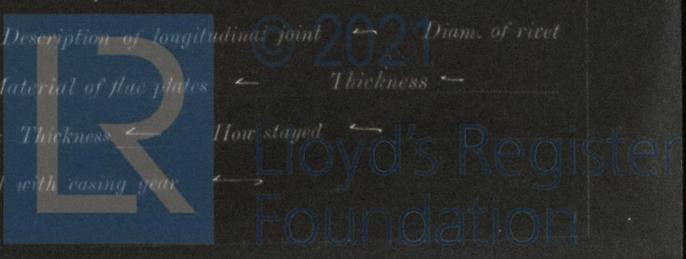
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No. in Survey held at *Greenock & Port Glasgow* Date, first Survey *15<sup>th</sup> March 1899* Last Survey *10<sup>th</sup> August 1900*  
 Reg. Book. *320* on the *Screw Steamer "Jupiter"* (Number of Visits *148*) Tons *Gross 4896.00, Net 3216.81.*  
 Master *Atilio de Legate*, Built at *Port Glasgow* By whom built *Russell & Coy.* When built *1900.*  
 Engines made at *Greenock* By whom made *Rankin & Blackmore.* when made *1900.*  
 Boilers made at *do* By whom made *do do do* when made *1900.*  
 Registered Horse Power Owners *Francisco Martinez Rodas.* Port belonging to *Bilbao.*  
 Nom. Horse Power as per Section 28 *403.* Is Refrigerating Machinery fitted *no.* Is Electric Light fitted *no.*

ENGINES, &c.—Description of Engines *Inverted Direct acting, Triple Expansion* No. of Cylinders *Three* No. of Cranks *Three*  
 Dia. of Cylinders *27, 43 & 72* Length of Stroke *48* Revs. per minute *66* Dia. of Screw shaft *as per rule 13.92, as fitted 14 3/8* Lgh. of stern bush *59*  
 Dia. of Tunnel shaft *as per rule 12.59, as fitted 12 3/4* Dia. of Crank shaft journals *as per rule 13.26, as fitted 13 1/2* Dia. of Crank pin *13 1/2* Size of Crank webs *18 1/2 x 9* Dia. of thrust shaft under collars *13 1/2* Dia. of screw *18.6* Pitch of screw *17.0* No. of blades *Four* State whether moreable *no* Total surface *110 sq.*  
 No. of Feed pumps *Two* Diameter of ditto *3 1/2* Stroke *26* Can one be overhauled while the other is at work *yes.*  
 No. of Bilge pumps *Two* Diameter of ditto *4 1/2* Stroke *26* Can one be overhauled while the other is at work *yes.*  
 No. of Donkey Engines *Two* Sizes of Pumps *14 x 10 & Duplex 4 1/2 x 8* No. and size of Suctions connected to both Bilge and Donkey pumps *In Engine Room Four 3 1/2*  
 In Engine Room *Four 3 1/2* In Holds, &c. *Sight 3 1/2 in holds & one 2 1/2 in tunnel well.*  
 No. of bilge injections *one* sizes *6 valves* Connected to condenser, or to circulating pump & pump 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 *no*  
 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 cessal *yes* Are the blow off cocks fitted with a spigot and brass covering plate *yes*  
 What pipes are carried through the bunkers *Bilge pipes* How are they protected *Wood casing.*  
 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 *before launching* Is the screw shaft tunnel watertight *yes*  
 Is it fitted with a watertight door *yes.* worked from *top platform.*

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *5121.* Is forced draft fitted *yes.*  
 No. and Description of Boilers *Two cylindrical. Multitubular* Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs.*  
 Date of test *23-6-00* Can each boiler be worked separately *yes.* Area of fire grate in each boiler *61 sq.* No. and Description of safety valves to each boiler *Two direct spring* Area of each valve *11.04 sq.* Pressure to which they are adjusted *184 lbs* Are they fitted with easing gear *yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *17.* Mean dia. of boilers *13.6* Length *11.6* Material of shell plates *Steel*  
 Thickness *1 3/32* Range of tensile strength *296 to 32,400* Are they welded or flanged *no* Descrip. of riveting: cir. seams *Lap double, long. seams 2.135 triple.*  
 Diameter of rivet holes in long. seams *1 1/4* Pitch of rivets *8 3/4 & 1 1/8.* Lap of plates or width of butt straps *18 1/4 straps.*  
 Per centages of strength of longitudinal joint *rievts 85.8, plate 85.7.* Working pressure of shell by rules *181.7 lbs* Size of manhole in shell *16 x 12*  
 Size of compensating ring *30 x 26 x 1 3/32* No. and Description of Furnaces in each boiler *Three Dightons* Material *Steel* Outside diameter *50.*  
 Length of plain part *top 19, bottom 32* Thickness of plates *top 19, bottom 32* Description of longitudinal joint *welded.* No. of strengthening rings *4*  
 Working pressure of furnace by the rules *188 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *9/16* Back *1/16* Top *19/32* Bottom *3/4*  
 Pitch of stays to ditto: Sides *7 3/4 x 7 3/4* Back *7 1/2 x 7 1/2* Top *8 x 8* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *182 to 190.*  
 Material of stays *Steel* Diameter at smallest part *1 3/8, 1 1/2 & 1 3/8* Area supported by each stay *596.76 sq.* Working pressure by rules *183 to 199.* End plates in steam space: Material *Steel* Thickness *1.* Pitch of stays *16 x 15 3/8* How are stays secured *double nuts* Working pressure by rules *182 lbs* Material of stays *Steel.*  
 Diameter at smallest part *2 7/16* Area supported by each stay *246 sq.* Working pressure by rules *192 lbs.* Material of Front plates at bottom *Steel.*  
 Thickness *7/8* Material of Lower back plate *Steel* Thickness *1 1/16* Greatest pitch of stays *12 1/2 to 14* Working pressure of plate by rules *180 lbs.*  
 Diameter of tubes *2 1/2* Pitch of tubes *3 1/2 x 3 1/2* Material of tube plates *Steel* Thickness: Front *3/4 & 1/2 double* Back *3/4* Mean pitch of stays *9.63*  
 Pitch across wide water spaces *13 1/4* Working pressures by rules *204 lbs* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *10 3/4 x 5/8 double* Length as per rule *3 1/4* Distance apart *8* Number and pitch of Stays in each *Three 8.*  
 Working pressure by rules *202 lbs* Superheater or Steam chest; how connected to boiler *no* Can the superheater be shut off and the boiler worked separately *no* Diameter *no* Length *no* Thickness of shell plates *no* Material *no* Description of longitudinal joint *no* Diam. of rivet holes *no* Pitch of rivets *no* Working pressure of shell by rules *no* Diameter of flue *no* Material of flue plates *no* Thickness *no*  
 If stiffened with rings *no* Distance between rings *no* Working pressure by rules *no* End plates: Thickness *no* How stayed *no*  
 Working pressure of end plates *no* Area of safety valves to superheater *no* Are they fitted with easing gear *no*

Is a Report also sent on the Hull of the Ship? *Yes*   
 *How*   
 *When*   
 *state whether, and when, one will be sent?*



**DONKEY BOILER**— No. *one* Description *Cylindrical Multitubular, see Glasgow report attached. c/o 18071*  
 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 casing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler *no.* \_\_\_\_\_  
 Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_  
 Descrip. of riveting long seams \_\_\_\_\_ Dia. 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:— *1 propeller, 3 Cylinders escape valves & springs, 12 shaft coupling bolts & nuts, 2 top & 2 bottom end do for connecting rods, 2 do for main bearing blocks, 6 holding down do, 6 junk ring pins, 6 Cylinder cover bolts, 6 do for valve chest covers, 2 sets of valves for circulating pumps, 2 do metallic for air pump, 2 feed & 2 bilge pump valves, 2 feed check valves, 1 feed escape valve & spring.*

The foregoing is a correct description,

*Randall Macmoray* Manufacturer.

Dates of Survey while building	During progress of work in shops—	1899. <i>March 15, May 22, 24, 29, 31, June 2, 13, 15, 19, 21, 26, 30, July 3, 19, 26, 28, Aug 1, 3, 5, 15, 22, 25, 28, 31, Sep 4, 13, 16, 20, 22, 25, 27, 29, Oct 2, 4, 6, 11, 13, 16, 21, 27, 31, Nov 2, 4, 8, 11, 14, 18, 24, 29, Dec 1, 4, 6, 8, 12, 13, 15, 19, 21, 25, 27, 29, Jan 9, 11, 15, 19, 22, 25, 30, Feb 1, 3, 6, 9, 12, 14, 17, 20, 22, 24, 26, Mar 2, 6, 8, 13, 14, 21, 23, 26, 30, April 4, 6, 11, 14, 18, 20, 24, 25, 30, May 2, 4, 8, 10, 11, 14, 16, 17, 21, 22, 23, 24, 26, 28, 29, 31, June 1, 2, 5, 7, 9, 11, 12, 13, 14, 15, 18, 23, 26, 28, 30, July 2, 4, 13, 14, 16, 17, 19, 20, 23, 24, 25, 27, 30, 31, Aug 1, 2, 3, 7, 9, 10.</i>	
		During erection on board vessel—	<i>16, 17, 19, 20, 23, 24, 25, 27, 30, 31, Aug 1, 2, 3, 7, 9, 10.</i>
		Total No. of visits	<i>148</i>

Is the approved plan of main boiler forwarded herewith *yes*  
 .. .. .. donkey .. .. .. *yes*

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

*These Engines & Boilers have been specially surveyed during construction, workmanship good. Shafts examined when being turned & found apparently sound. Main Steam pipes satisfactorily tested by hydraulic pressure to 400 lbs per sq. The Engines and Boilers are satisfactorily fitted in vessel, and have been tested under full steam, they are now in good order and safe working condition, and are in my opinion eligible to be noted in Register Book L.M.C. 8,00.*

*This vessel's main Boilers are fitted with Howden's system of forced draught.*

*Spare gear continued*

*12 condenser tubes & 120 packing ferrules, 12 main boiler tubes, 6 do for Donkey boiler, 1 set safety valve springs, 2 valves & seats for feed Donkey pump, & 2 feed check valves, 1/2 set fire bars, & a quantity of bolts nuts & iron assorted.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 8-00 F.D.

*14-8-00*

The amount of Entry Fee..	£ 2 : " : "	When applied for.
Special .. .. .	£ 10 : 3 : "	8.8.1900
Donkey Boiler Fee .. .	£ " : " : "	When received.
Travelling Expenses (if any)	£ " : " : "	9.9.1900

*A. B. Heron,*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping,  
 Greenock District.

Committee's Minute *Glasgow* 13 AUG 1900  
 Assigned + L.M.C. 8.00.



Lloyd's Register Foundation

Greenock

Certificate (if required) to be sent to

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