

Gls. No. 16450

# REPORT ON MACHINERY.

Port of Glasgow

SAT. 8 OCT 1898

Received at London Office. 18

No. in Survey held at Paisley

Date, first Survey 17<sup>th</sup> June '98 Last Survey 26<sup>th</sup> August 1898.

g. Book. on the S.S. "AJAX."

(Number of Visits 32.) Tons } Gross Net

Master Built at Greenock By whom built Carmichael & McLean When built 1898

Engines made at Paisley By whom made Bow Mc Rachlan when made 1898.

Boilers made at Paisley By whom made Bow Mc Rachlan when made 1898.

Registered Horse Power Owners Port belonging to

nom. Horse Power as per Section 28 46 Is Electric Light fitted No.

**ENGINES, &c.** — Description of Engines Triple Exp. Surface condensing No. of Cylinders 3 No. of Cranks 3  
 Diameter of Cylinders 13. 22 + 35 Length of Stroke 27" Revolutions per minute 110 Diameter of Screw shaft as per rule 7.16  
 Diameter of Tunnel shaft as fitted 6.48 Diameter of Crank shaft journals 7/4" Diameter of Crank pin 7/4" Size of Crank webs 5/4 x 13/2  
 Diameter of screw 9. 3" Pitch of screw 13. 0" No. of blades 4 State whether moveable no Total surface 32 sq. ft.  
 No. of Feed pumps 1 Diameter of ditto 3 1/2" Stroke 13 1/2" Can one be overhauled while the other is at work ✓  
 No. of Bilge pumps 1 Diameter of ditto 3 1/2" Stroke 13 1/2" Can one be overhauled while the other is at work ✓  
 No. of Donkey Engines one Sizes of Pumps 3 1/2 double acting No. and size of Suctions connected to both Bilge and Donkey pumps  
 Engine Room 2 - 2" dia. + 1 bilge ejector In Holds, &c. one 2"  
 No. of bilge injections 1 sizes 4" Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room & size yes 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 ✓  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks valves & cocks.  
 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  
 How are they protected ✓  
 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 launch Is the screw shaft tunnel watertight  
 Is it fitted with a watertight door ✓ worked from ✓

**BOILERS, &c.** — (Letter for record (S) Total Heating Surface of Boilers 1246" Is forced draft fitted no  
 No. and Description of Boilers one multitubular Single Ended Working Pressure 180lbs Tested by hydraulic pressure to 360lbs  
 Date of test 30/12/97 Can each boiler be worked separately ✓ Area of fire grate in each boiler 50 1/2" No. and Description of safety valves to  
 each boiler 2 Patent Spring 2 5/8" dia Area of each valve 5.41" 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 14" Mean diameter of boilers 12 - 9 5/8"  
 Length 10 - 0" Material of shell plates steel Thickness 13/16" Description of riveting: circum. seams double lap long. seams treble butt  
 Diameter of rivet holes in long. seams 13/16" Pitch of rivets 8" Lap of plates or width of butt straps 17 3/4"  
 Percentages of strength of longitudinal joint rivets 86.7 Working pressure of shell by rules 197 lbs Size of manhole in shell 12 x 16"  
 Diameter of compensating ring McKeils No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 3 - 4"  
 Length of plain part top ✓ Thickness of plates crown } 1/2" Description of longitudinal joint welded No. of strengthening rings ✓  
 bottom ✓ Thickness of plates bottom } 1/2"  
 Working pressure of furnace by the rules 189 lbs Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 7/8"  
 Pitch of stays to ditto: Sides 7/4 x 7/4 Back 7/4 x 7/4 Top 7/4 x 7/4 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182 lbs  
 Material of stays steel Diameter at smallest part 1.38 Area supported by each stay 60" Working pressure by rules 199 lbs End plates in steam space:  
 Material steel Thickness 29/32" Pitch of stays 14 x 14 How are stays secured nuts Working pressure by rules 187 lbs Material of stays steel  
 Diameter at smallest part 2.34 Area supported by each stay 196" Working pressure by rules 197 Material of Front plates at bottom steel  
 Thickness 3/4" Material of Lower back plate steel { Thickness 7/16" Greatest pitch of stays 12" Working pressure of plate by rules 296 lbs  
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" Material of tube plates steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9/2  
 Pitch across wide water spaces 13 1/2" Working pressures by rules 209 lbs Girders to Chamber tops: Material iron Depth and  
 thickness of girder at centre 7 1/2 x 2 Length as per rule 2 - 8" Distance apart 7" Number and pitch of Stays in each 3 - 4 3/4"  
 Working pressure by rules 188 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 *none*

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:— *2 Piston rod bolts, 2 connecting rod bolts, 2 main bearing bolts, 2 Safety valve springs, a quantity, assorted bolts & nuts, 1 set coupling bolts, 1 set of Feed & Bilge pump valves.*

The foregoing is a correct description,

Manufacturer.

*Row. MacLellan Esq*

Dates of Survey while building

During progress of work in shops—	1897. Jan 17. 28. July 22. Aug 3. 26. Oct 14. 20. 26. 27. Nov 22. 30. Dec 1. 8. 10.
	1898. Jan 12. 25. Feb 3. 21. Mar 7. 21. Apr 7. 13. May 5. 23. 30. June 22. 24. July 7. Aug 2. 3. 26.

Total No. of visits *32.*

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

**ENGINES**—Length of stern bush *2' 4 1/4"* Diameter of crank shaft journals *as per rule 6.82* Diameter of thrust shaft under collars *6 1/16*

**BOILERS**—Range of tensile strength *27-37* Are they welded or flanged *no* **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

The Machinery of this vessel has been constructed under special survey, and is of good material & workmanship, it has been securely fitted on board, & is in my opinion Eligible to be classed in the Register Book & to have the record of survey **L.M.C. 9.98**

It is submitted that this vessel is eligible for THE RECORD. *L.M.C. 8.98*

*8/10/98*

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

The amount of Entry Fee. . . . .	£ 1	-	:	When applied for,
Special . . . . .	£ 11	:	8	29.9.18.98
Donkey Boiler Fee . . . . .	£	✓	:	When received,
Travelling Expenses (if any) £	✓	:	:	17.10.98

*J. W. Dunsmuir*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI, 14 OCT 1898

WRITTEN

Assigned

*+ L.M.C. 8.98*



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