

REPORT ON MACHINERY.

JUL 31 1900

Port of Glasgow

Received at London Office _____

No. in Survey held at Glasgow Date, first Survey 27 February Last Survey 17 July 1900.
 Reg. Book. _____ (Number of Visits _____)
 on the Screw steamer "Achilles" Tons Gross 641.47 Net 136.58
 Master J. Morrow Built at Irvine By whom built Irvine Shipyards When built 1900
 Engines made at Glasgow By whom made Hutton & Sons Ltd when made 1900
 Boilers made at Glasgow By whom made Hutton & Sons Ltd when made 1900
 Registered Horse Power _____ Owners J & P. Hutchison Port belonging to Glasgow
 Nom. Horse Power as per Section 28 85 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c. — Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks Three
 Dia. of Cylinders 14" 23" 34" Length of Stroke 27" Revs. per minute 95 Dia. of Screw shaft 4 1/2" Length of stern bush 36"
 Dia. of Tunnel shaft 6 1/2" Dia. of Crank shaft journals 6 3/8" Dia. of Crank pin 6 7/8" Size of Crank webs 9 1/2" x 8" Dia. of thrust shaft under collars 6 7/8" Dia. of screw 10.9" Pitch of screw 12.0" No. of blades 4 State whether moceable No Total surface 30.4
 No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 13 1/2" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 2 1/2" Stroke 13 1/2" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Two Sizes of Pumps (4 1/2" x 3" x 6") (5 1/2" x 3" x 6") No. and size of Suctions connected to both Bilge and Donkey pumps Both pumps
 In Engine Room Three: 2" dia" In Holds, &c. Two: 2" dia"
 No. of bilge injections 1 sizes 3 1/4" Connected to condenser, or to circulating pump C.P. 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 Yes
 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 Hold Suctions How are they protected By 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 New Vessel Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c. — (Letter for record A) Total Heating Surface of Boilers 1494 sq. ft. Is forced draft fitted No
 No. and Description of Boilers One: Cylindrical Mult. Single ended Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs
 Date of test 7.7.00 Can each boiler be worked separately Yes Area of fire grate in each boiler 49 sq. ft. No. and Description of safety valves to each boiler 2: Direct Spring Area of each valve 5.94" Pressure to which they are adjusted 165 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork About 9" Mean dia. of boilers 13.6" Length 10.0" Material of shell plates Steel
 Thickness 1 1/8" Range of tensile strength 27-32 tons Are they welded or flanged No Descrip. of riveting: cir. seams Lap Double long seams Double Butt Straps
 Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 8" Lap of plates or width of butt straps 1 1/4"
 Per centages of strength of longitudinal joint rivets 86.5 Working pressure of shell by rules 164 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 4 1/2" x 1 1/8" No. and Description of Furnaces in each boiler 3: plain Material Steel Outside diameter 39"
 Length of plain part top 5.10" Thickness of plates crown 2 1/2" Description of longitudinal joint Weld No. of strengthening rings partial at 2 bottom
 Working pressure of furnace by the rules 163 lbs Combustion chamber plates: Material Steel Thickness: Sides 1 1/2" Back 3/2" Top 3/2" Bottom 3/2"
 Pitch of stays to ditto: Sides 7/4" x 7/32" Back 7/4" x 7/32" Top 7/4" x 7/32" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 160 lbs
 Material of stays Iron Diameter at smallest part 1 3/8" Area supported by each stay 5 1/2" Working pressure by rules 160 lbs End plates, in steam space: Material Steel Thickness 3/32" Pitch of stays 1 1/2" x 1 1/2" How are stays secured Double nut & washers Working pressure by rules 161 lbs Material of stays Iron
 Diameter at smallest part 2 3/8" Area supported by each stay 2 11" Working pressure by rules 160 lbs Material of Front plates at bottom Steel
 Thickness 3/4" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 12 1/2" Working pressure of plate by rules 350 lbs
 Diameter of tubes 5 1/2" Pitch of tubes 1 1/4" x 1 1/4" Material of tube plates Steel Thickness: Front 1 1/16" Back 1 1/16" Mean pitch of stays 9 1/2"
 Pitch across wide water spaces 14 1/4" Working pressures by rules 196 lbs, 263 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 1/2" x 1 1/4" Length as per rule 32 5/8" Distance apart 7/4" Number and pitch of Stays in each 3: 7/32"
 Working pressure by rules 164 lbs Superheater or Steam chest; None 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 _____
 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 _____



GL5289-0119

DONKEY BOILER— No. *One*. Description *Vertical with 3 cross tubes*.
 Made at *Gateshead* By whom made *Clarke, Chapman & Co.* When made *12/6/00* Where fixed *In Stockholm*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *5901* Fire grate area *11* Description of safety valves *Direct Spring*
 No. of safety valves *1* Area of each *5.94* Pressure to which they are adjusted *82 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*. Dia. of donkey boiler *4.9"* Length *10.6"* Material of shell plates *Steel* Thickness *3/4"* Range of tensile strength *27-31 tons* Descrip. of riveting long. seams *Lap Double Rivet* Dia. of rivet hole *3/4"* Whether punched or drilled *Drilled* Pitch of rivets *2 3/4"*
 Lap of plating *3 3/4"* Per centage of strength of joint Rivets *46* Thickness of shell crown plates *1/2"* Radius of do. *5 feet* No. of Stays to do. *4*
 Dia. of stays. *1 5/8"* Diameter of furnace Top *3 5/4"* Bottom *4.2"* Length of furnace *4.8"* Thickness of furnace plates *1 5/2"* Description of joint *Lap, Single* Thickness of furnace crown plates *1 5/2"* Stayed by *As above*. Working pressure of shell by rules *93 lbs*.
 Working pressure of furnace by rules *80 lbs*. Diameter of uptake *12"* Thickness of uptake plates *3/8"* Thickness of water tubes *3/8"*.

SPARE GEAR. State the articles supplied:— *Propeller, 2 main Bearing Bolts & nuts, 2 Crank pin Bolts & nuts, 2 Crosshead Bolts & nuts, 1 set Coupling Bolts & nuts, 1 set Feed & Belge pump valves, 1 set Air circulating pump valves, Quantity of Iron Assorted sizes, Bolts, nuts & studs assorted sizes.*
 The foregoing is a correct description,
 Manufacturer. *Hutson Sons Lt. and Partners.*

Dates of Survey while building
 During progress of work in shops— *1900:— Feb. 27. Mar. 1. 20. 27. Apr. 9. 14. 20. 30. May. 10. 12. 17. 23. 29.*
 During erection on board vessel— *June 4. 11. 18. 25. July. 2. 7. 9. 12. 13. 17.*
 Total No. of visits *28.* Is the approved plan of main boiler forwarded herewith *Yes.*
 " " " donkey " " " *Yes.*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Engines and Boilers of this vessel have been built under special survey & the materials and workmanship are good. When completed they were tried under steam and worked satisfactorily.
*The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of **£ L. M. C. 7,00** marked in the Society's Register Book.*

It is submitted that this vessel is eligible for THE RECORD. **£ L. M. C. 7,00** Rec. light
W. K. Austin
 31.7.00
 31.7.00

Glasgow

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 1 :	When applied for.
Special	£ 12 : 15 :	29/9/00
Donkey Boiler Fee	£ :	When received.
Travelling Expenses (if any) £	: 8 :	28/9/00

Committee's Minute **Glasgow. 30 JUL 1900**
 Assigned **£ L. M. C. 7,00.**

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