

REPORT ON MACHINERY.

JUL 31 1900

Port of *Glasgow*

Received at London Office

18

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"*Gross *641.47*
Net *136.58*Master *J. Morrow* Built at *Irvine*By whom built *Irvine Shipbldg Co.*When built *1900*Engines made at *Glasgow*By whom made *Hutton & Sons Limd.*when made *1900*Boilers made at *Glasgow*By whom made *Hutton & Sons Limd.*when made *1900*

Registered Horse Power

Owners *J & P. Hutton*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* Recs. per minute *95* Dia. of Screw shaft *4 1/2* as per rule *4 1/2* as fitted *4 1/2* Length of stern bush *36*Dia. of Tunnel shaft *6 1/2* as fitted *6 1/2* Dia. of Crank shaft journals *6 1/2* as fitted *6 1/2* Dia. of Crank pin *6 1/2* Size of Crank webs *9 1/2 x 8* Dia. of thrust shaft undercollars *6 1/2* Dia. of screw *10.9* Pitch of screw *12.0* No. of blades *4* State whether moveable *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 5 x 6)* No. and size of Suctions connected to both Bilge and Donkey pumpsIn 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 *Last 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 toeach 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*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 *5.10'* Thickness of plates *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 *3/32"* Back *3/32"* Top *3/32"* Bottom *3/32"*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 *2 1/2"* Pitch of stays *14 1/2 x 14 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 1/2"* 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 *14 1/2 x 14 1/2* Material of tube plates *Steel* Thickness: Front *1 1/8"* Back *1 1/8"* Mean pitch of stays *9 1/2"*Pitch across wide water spaces *14 1/2"* Working pressures by rules *196 lbs, 263 lbs* Girders to Chamber tops: Material *Steel* Depth andthickness 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

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

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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 stockhold*
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 5/8"* 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 1/4"* Bottom *4' 2"* Length of furnace *4' 8"* Thickness of furnace plates *1 5/8"* Description of joint *Lap, Single* Thickness of furnace crown plates *1 5/8"* 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 Bolt & nuts, 2 Crank pin Bolt & nuts, 2 Crosshead Bolt & nuts, 1 set Coupling Bolt & nuts, 1 set Feed & Belge pump valves, 1 set Air circulating pump valves, Quantity of Iron Assorted sizes, Bolt, nuts & studs assorted sizes.*
The foregoing is a correct description,

Manufacturer.

Hutson Sons & Co. Ltd. Liverpool.

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 *23*. 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

CM.
31.7.00

The amount of Entry Fee. £ *1* : : When applied for, *29/9/00*
Special .. £ *12* : *15* : :
Donkey Boiler Fee .. £ : : : When received, *28/7/00*
Travelling Expenses (if any) £ : *8* : :
18/7/00

Committee's Minute *Glasgow. 30 JUL 1900*

Assigned

L.M.C. 7.00

MACHINERY CERTIFICATE WRITTEN



Lloyd's Register Foundation