

REPORT ON MACHINERY.

Port of Glasgow

FRI. 3 NOV 1899

Received at London Office 18

No. in Survey held at Glasgow Date, first Survey 8 Decr 1898 Last Survey 25 October 1899
Reg. Book. " Adato " (Number of Visits 46)

on the Screw Steamer Adato Tons ^{Gross} _{Net}
Master Built at Glasgow By whom built A. Hamilton & Co^{ys} When built 1899

Engines made at Glasgow By whom made Dunsmuir & Jackson when made 1899
Boilers made at Glasgow By whom made Dunsmuir & Jackson when made 1899

Registered Horse Power Owners A. Neil & Co^{ys} Port belonging to Glasgow
Nom. Horse Power as per Section 28 299 Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks Three

Diameter of Cylinders 24"-40"-65" Length of Stroke 42" Revolutions per minute 72 Diameter of Screw shaft as per rule 11.89 ^{12.4}
Diameter of Tunnel shaft as per rule 10.45 ^{11.20} Diameter of Crank shaft journals 12 1/2" Diameter of Crank pin 12 1/2" Size of Crank webs 14 3/4" x 8 1/4"
Diameter of screw 16 1/2" Pitch of screw 14 1/2" No. of blades 4 State whether moveable Yes Total surface 79.9 sq. ft.
No. of Feed pumps 2 Diameter of ditto 3 3/4" Stroke 21" Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work Yes
No. of Donkey Engines Two Sizes of Pumps (6" x 4 1/2" x 6") (9" x 10" x 10") No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Four: 3 1/2" dia. In Holds, &c. No. 1 Hold: Two-3 1/2" dia. No. 2 Hold: 2-3 1/2" dia.
No. 3 Hold: Two-3 1/2" dia. No. 4 Hold: one-3 1/2" dia. Funnel well: one-3 1/2" dia.
No. of bilge injections 1 sizes 5" Connected to condenser, or to circulating pump C.P. Is 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 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 None 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 in vessel Is the screw shaft tunnel watertight Yes
Is it fitted with a watertight door Yes worked from Pop platform

BOILERS, &c.— (Letter for record 5) Total Heating Surface of Boilers 4620 sq. ft. Is forced draft fitted No

No. and Description of Boilers 2 cyl^{dr} multi Singl^{end} Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs
Date of test 8/9/99 Can each boiler be worked separately Yes Area of fire grate in each boiler 63 1/4 sq. ft. No. and Description of safety valves to each boiler 2: Direct Spring Area of each valve 7.06 sq. in. 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 abt. 15" Mean diameter of boilers 15' 6"
Length 10' 9" Material of shell plates Steel Thickness 1 1/4" Description of riveting: circum. seams Lap Double long. seams Double Butt Strap
Diameter of rivet holes in long. seams 1 7/8" Pitch of rivets 9 1/4" 4 5/8" Lap of plates or width of butt straps 19 1/2"
Per centages of strength of longitudinal joint 87 Working pressure of shell by rules 183 lbs Size of manhole in shell 16" x 12"
Size of compensating ring 34" x 28 1/2" x 1 1/4" No. and Description of Furnaces in each boiler 3: Doughton's Material Steel Outside diameter 48"
Length of plain part 36' 9" Thickness of plates 1 1/4" Description of longitudinal joint Welded No. of strengthening rings -
Working pressure of furnace by the rules 180 lbs Combustion chamber plates: Material Steel Thickness: Sides 5" Back 3 1/2" Top 5" Bottom 3 1/4"
Pitch of stays to ditto: Sides 9" x 8 1/4" Back 8" x 8" Top 9" x 8 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lbs
Material of stays Steel Diameter at smallest part 1 3/8" x 1 1/2" Area supported by each stay 744 sq. in. Working pressure by rules 185 lbs End plates in steam space: Material Steel Thickness 1 1/8" Pitch of stays 14" x 16" How are stays secured Double nut Working pressure by rules 180 lbs Material of stays Steel
Diameter at smallest part 2 3/8" Area supported by each stay 282 sq. in. Working pressure by rules 184 lbs Material of Front plates at bottom Steel
Thickness 3/8" Material of Lower back plate Steel Thickness 3/8" Greatest pitch of stays 14 1/2" Working pressure of plate by rules 192 lbs
Diameter of tubes 3 1/2" Pitch of tubes 4 1/4" x 4 5/8" Material of tube plates Steel Thickness: Front 1" Back 3/8" Mean pitch of stays 11 1/4"
Pitch across wide water spaces 14 1/2" Working pressures by rules 182 lbs 197 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7" x 2 1/8" Length as per rule 20 1/2" Distance apart 8 1/4" Number and pitch of Stays in each 2: 9"
Working pressure by rules 194 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately

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
Steel	Welded	1 7/8"	9 1/4"	183 lbs	1 1/4"	Steel	1 1/4"
Steel	Welded	1 7/8"	9 1/4"	183 lbs	1 1/4"	Steel	1 1/4"
Steel	Welded	1 7/8"	9 1/4"	183 lbs	1 1/4"	Steel	1 1/4"

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 *Cylindrical mult Single ended with furnaces*
 Made at *Glasgow* By whom made *Dunsmuir & Jackson* When made *8/9/99* Where fixed *In Household*
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *5146* Fire grate area *20* Description of safety valves *Over Spring*
 No. of safety valves *2* Area of each *98* Pressure to which they are adjusted *95 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *8'6"* Length *8'6"* Material of shell plates *Steel* Thickness *1/2"*
 Description of riveting long seams *Lap - Quadruple* Diameter of rivet holes *13/16"* Whether punched or drilled *Drilled* Pitch of rivets *4 1/2"*
 Lap of plating *6 1/2"* Per centage of strength of joint Rivets *82.9* Thickness of shell plates *32* Radius of do. *pitch* No. of Stays to do. *16*
 Dia. of stays *1 1/8"* Diameter of furnace Top *30 1/8"* Bottom *25"* Length of furnace *5'6"* Thickness of furnace plates *1/2"* Description of joint *held* Thickness of furnace crown plates *1/2"* Stayed by *8 stays* Working pressure of shell by rules *95 lbs*
 Working pressure of furnace by rules *100 lbs* Diameter of uptake tubes *3"* Thickness of uptake plates *3/32"* Thickness of water tubes *1/4"*

SPARE GEAR. State the articles supplied:— *The list of spare gear required by the Rules is fitted on board, also the following articles: 1 Set valves for each pump in ship. 1 Set piston Rings for H.P. & L.P. pistons, 1 Spring for each size of escape valve, 1 Set of piston valve packing Rings, 1 Propeller & shaft, 20 Condenser tubes, 20 Boiler tubes, 6 Donkey Boiler tubes iron & bolts assorted sizes.*
 The foregoing is a correct description,
Dunsmuir & Jackson Manufacturer.

Dates During progress of work in shops— *1898: Dec. 8. 1899: Jan. 12. 23. 31. Feb. 2. 7. 13. 21. Mar. 10. 17. 22. 27. Apr. 12. 17. B. 24. May. 1. 11. 16.*
 of Survey while board vessel— *30. June. 1. 8. 20. 26. July. 5. 25. 29. Aug. 7. 14. 16. 25. 30. Sep. 1. 8. 21. 27. Oct. 2. 5. 9. 12. 13. 17. 18. 24.*
 building Total No. of visits *46*

General Remarks (State quality of workmanship, opinions as to class, &c.)
ENGINES—Length of stern bush *4'4"* Diameter of crank shaft journals *11 1/2"* as per rule *11 1/2"* Diameter of thrust shaft under collars *12 1/2"* as fitted *12 1/2"*
BOILERS—Range of tensile strength *28-32* lbs are they welded or flanged *No* **DONKEY BOILERS**—No. *1* Range of tensile strength *28-32*
 Is the approved plan of main boiler forwarded herewith *Yes* Is the approved plan of donkey boiler forwarded herewith *Yes*

The engines and boilers of this vessel have been built under special survey and 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 \boxtimes L.M.C. 10,99. marked in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 10.99. *Elec Lt.*

Wmk Austin
 3/11/99
 3.11.99

The amount of Entry Fee. £ *5* : : : When applied for.
 Special £ *24* : *19* : : : *27 Oct 99*
 Donkey Boiler Fee £ : : : : When received,
 Travelling Expenses (if any) £ : : : : *28 Oct 99*

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

Committee's Minute **FRI. 3 NOV 1899**
 Assigned

MACHINERY CERTIFICATE WRITTEN



Lloyd's Register Foundation

Glasgow

Certificate (if required) to be sent to