

REPORT ON MACHINERY.

Port of Sunderland

TUES. 8 JUL 1902

Received at London Office

No. in Survey held at Sunderland Date, first Survey 20th March Last Survey 20th June 1902.

Reg. Book. on the S.S. "Alto" (Number of Visits 16)

Master E. W. Evans Built at Sunderland By whom built S. P. Austin & Sons. Ld When built 1902

Engines made at Sunderland By whom made Geo Clark & Ld when made 1902

Boilers made at Sunderland By whom made Geo Clark & Ld when made 1902

Registered Horse Power 215 Owners Gardiner & Reay Port belonging to Newcastle-on-Tyne

Nom. Horse Power as per Section 28 215 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple exp No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 21 - 35 - 5 1/2 Length of Stroke 39" Revs. per minute 70 Dia. of Screw shaft as per rule 10 1/8 as fitted 12 1/2 Lgth. of stern bush 4 1/8

Dia. of Tunnel shaft as per rule 10 1/4 as fitted 10 3/4 Dia. of Crank shaft journals as per rule 10 65 as fitted 10 3/4 Dia. of Crank pin 10 3/4 Size of Crank webs 16 1/2 x 7 1/2 Dia. of thrust shaft under collars 11" Dia. of screw 15'0 Pitch of screw 16'0" No. of blades 4 State whether moveable No Total surface 66 sq

No. of Feed pumps 2 Diameter of ditto 2 7/8" Stroke 23" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 1/4" Stroke 23" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps BALLET 5 1/4 x 3 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 2 - 3" dia

In Holds, &c. 2 in each hold. 3" dia after well 3" dia

No. of bilge injections 1 sizes 4" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size yes 5" dia

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 new vessel Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from top platform

OILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 3373 sq Is forced draft fitted No

No. and Description of Boilers 2 single ended ord. marine type Working Pressure 160 lbs Tested by hydraulic pressure to 320

Date of test 9-6-02 Can each boiler be worked separately yes Area of fire grate in each boiler 49.35 No. and Description of safety valves to each boiler 2 direct spring loaded Area of each valve 5.939 Pressure to which they are adjusted 160 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 1'6" Mean dia. of boilers 13'5 1/2" Length 10'6" Material of shell plates S

Thickness 63" Range of tensile strength 28 1/2 - 32 Are they welded or flanged end plates flanged Descrip. of riveting: cir. seams D.R.L. long. seams T.R.D.B.

Diameter of rivet holes in long. seams 1 1/16 Pitch of rivets 7 1/16 ~~width of butt straps~~ 16 3/8

Per centages of strength of longitudinal joint rivets 105 plate 84.9 Working pressure of shell by rules 161 Size of manhole in shell 16" x 13"

Size of compensating ring 8 3/4 x 1" No. and Description of Furnaces in each boiler 3 plain Material S Outside diameter 3'5"

Length of plain part top 7'0" bottom 4 1/4" Thickness of plates crown 4 1/4" Description of longitudinal joint weld No. of strengthening rings 2 on bottom

Working pressure of furnace by the rules 164 Combustion chamber plates: Material S Thickness: Sides 21/32 Back 21/32 Top 21/32 Bottom 3/4

Pitch of stays to ditto: Sides 9 1/2 x 9 1/4 Back 9 1/2 Top 9 1/4 x 8 3/4 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 162

Material of stays S Diameter at smallest part 1 7/32 Area supported by each stay 90 Working pressure by rules 170 End plates in steam space:

Material S Thickness 1 1/16 Pitch of stays 18 1/2 x 18 How are stays secured nuts Working pressure by rules 160 Material of stays S

Diameter at smallest part 2 7/8 Area supported by each stay 333 Working pressure by rules 160 Material of Front plates at bottom S

Thickness 3/4 Material of Lower back plate S Thickness 27/32 Greatest pitch of stays 14" Working pressure of plate by rules 163

Diameter of tubes 3 1/4 ext Pitch of tubes 4 15/32 x 4 3/8 Material of tube plates S Thickness: Front 1 1/16 Back 23/32 Mean pitch of stays 8 3/4

Pitch across wide water spaces 14 1/16 Working pressures by rules 205 Girders to Chamber tops: Material S Depth and

Thickness of girder at centre 7 3/4 x 3/4 x 2 Length as per rule 30 Distance apart 8 3/4 Number and pitch of Stays in each 2 - 9 1/4 p

Working pressure by rules 164 Superheater or Steam chest; how connected to boiler 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

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

Hadden 200805 sld

DONKEY BOILER— No. 1 Description Cyl Mult 2 plain furnaces
 Made at Stockton By whom made Messrs Riley Bros When made 16.5.02 Where fixed Stokehold
 Working pressure 160 tested by hydraulic pressure to 320 No. of Certificate 2754 Fire grate area 26 1/4 Description of safety valves spring
 No. of safety valves 2 Area of each 3.14 Pressure to which they are adjusted 160 lbs If fitted with easing gear yes If steam from main boilers can enter the donkey boiler no Dia. of donkey boiler 9'6" Length 9'6" Material of shell plates S Thickness 25/32 Range of tensile strength 27.32 Descrip. of riveting long. seams doub. butt straps Dia. of rivet holes 15/16 Whether punched or drilled drilled Pitch of rivets 1 1/2" - 2 1/2"
 Lap of plating 1 3/8" Per centage of strength of joint 86.6 Rivets 94 Thickness of shell end plates 15/16 Pitch stay of do. 15" x 16" No. of Stays to do. 5
 Dia. of stays 2 1/2" off S Diameter of furnace Top 33" Bottom 28" Length of furnace 5' 11" Thickness of furnace plates 19/32 Description of joint weld Thickness of G.C.H.R. plates sides 9/16" Stayed by 1 3/8" of 1 5/8" S.S. 3 3/4" to 8" pitch Working pressure of shell by rules 16 lbs
 Working pressure of furnace by rules 160 lbs Diameter of 3 1/4" 4 1/2" tubes Thickness of tube plates front 15/16" back 2 1/32" Thickness of stay tubes 5/16"

SPARE GEAR. State the articles supplied:—

Top & bottom end connecting rod, bolts, nuts, two main bearing bolts & nuts, one set coupling bolts, feed & bilge pump valves, bolts, nuts & iron assorted propeller &c.

The foregoing is a correct description,

FOR GEORGE CLARK LIMITED,

Manufacturers.

Henry Clark

Dates of Survey while building
 During progress of work in shops - - - 1902 - Mar 20. 21. 24. Apr 8. 11. 15. May 29. June 3. 6. 7. 9. 12. 13. 17. 18. 20.
 During erection on board vessel - - -
 Total No. of visits 16

Is the approved plan of main boiler forwarded herewith yes
 " " " donkey " " " yes

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

Material of screw shaft Scrap iron Is the screw shaft fitted with a continuous liner the whole length of the stern tube No
 Is the after end of the liner made water tight in the propeller boss yes If the liner is in more than one length are the joints burned No
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓ If two liners are fitted, is the shaft lapped or protected between the liners No

The machinery of this vessel has been constructed under Special Survey, the material & workmanship being good & efficient & the engines when tried under steam worked satisfactorily.

The pumps, watertight doors, and steam steering gear are in good working order & the main steam pipes have been tested to 400 lbs per square inch.

In my opinion this vessel is eligible for the notification in the Register Book of L.M.C. 6.02

It is submitted that this vessel is eligible for THE RECORD - L M C 6:02

P.H.
8.7.02

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8.7.02

The amount of Entry Fee. £ 2 : : When applied for.
 Special £ 30 15 : : 1. 7. 02
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : : 4. 7. 02

Pat R Salmon
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute

FRI. 11 JUL 1902

Assigned

+ L M C 6.02



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Certificate (if required) to be sent to

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