

# REPORT ON MACHINERY.

TUES. 4 SEP 1906

Port of Newcastle

Received at London Office

No. in Survey held at Newcastle  
Reg. Book. on the SS San Cristobal

Date, first Survey 25<sup>th</sup> April

Last Survey 30<sup>th</sup> Aug<sup>st</sup> 1906

(Number of Visits 19)

Tons } Gross 2011  
Net 1905  
When built 1906

Master Built at Newcastle By whom built Armstrong Whitworth & Co

Engines made at Wallsend By whom made Wallsend Slipway & Co when made 1906

Boilers made at Hebburn By whom made R Stephenson & Co when made 1906

Registered Horse Power Owners Com. Mexicana de Vapores del Aquila S.A. Port belonging to Vera Cruz

Nom. Horse Power as per Section 28 216 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines 3 cyl. D. No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 20 33 54 Length of Stroke 36 Revs. per minute 40 Dia. of Screw shaft as per rule 11 3/4 Material of screw shaft S.

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes 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 yes If two

liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 4 ft.

Dia. of Tunnel shaft as per rule 10.5 Dia. of Crank shaft journals as per rule 11 Dia. of Crank pin 11 Size of Crank web 22 x 18 Dia. of thrust shaft under

collars 11 Dia. of screw 13 9 Pitch of Screw 13 9 No. of Blades 4 State whether moveable f Total surface 65 sq.

No. of Feed pumps 2 Diameter of ditto 3 Stroke 22 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 3 1/2 Stroke 22 Can one be overhauled while the other is at work yes

No. of Donkey Engines 2 Sizes of Pumps 6 x 4 x 6 + 6 x 5 1/2 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 4 of 3" In Holds, &c. Copper d. ans 2 of 5" Ford 2 of 4 aft.

No. of Bilge Injections 1 sizes 5 Connected to condenser, or to circulating pump CP Is a separate Donkey Suction fitted in Engine room & size yes 3"

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 no

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

Dates of examination of completion of fitting of Sea Connections 14/7 of Stern Tube 14/7 Screw shaft and Propeller 14/7

Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door no worked from no

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Spencer & Sons Ltd

Total Heating Surface of Boilers 3684 sq. ft. Is Forced Draft fitted no No. and Description of Boilers 3 Cyl. Multitubular

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 30<sup>th</sup> April No. of Certificate 4210 p.

Can each boiler be worked separately yes Area of fire grate in each boiler 37 sq. ft. No. and Description of Safety Valves to

each boiler 2 Spring Area of each valve 4.9 Pressure to which they are adjusted 185 Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2 feet Mean dia. of boilers 10' 10" Length 11' 6" Material of shell plates S.

Thickness 1" Range of tensile strength 32 long Are the shell plates welded or flanged ends no Descrip. of riveting: cir. seams a. butt 1/4"

long. seams a. r. lap Diameter of rivet holes in long. seams 1 3/16 Pitch of rivets 7 1/2" Lap of plates or width of butt straps 16 3/8"

Per centages of strength of longitudinal joint rivets 91.4 Working pressure of shell by rules 200 lbs Size of manhole in shell 16 x 12"

Size of compensating ring flanged No. and Description of Furnaces in each boiler 2 Diag<sup>ns</sup> Material S. Outside diameter 41"

Length of plain part top 1 Thickness of plates crown 3/2 Description of longitudinal joint weld No. of strengthening rings no

Working pressure of furnace by the rules 184 Combustion chamber plates: Material S. Thickness: Sides 3/2 Back 1/6 Top 3/2 Bottom 1 3/16

Pitch of stays to ditto: Sides 9 1/2 x 8 1/2 Back 9 1/2 x 9 Top 9 1/2 x 8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 190 lbs

Material of stays S. Diameter at smallest part 1 1/6" Area supported by each stay 85.5 Working pressure by rules 216 lbs End plates in steam space:

Material S. Thickness 1 1/8" Pitch of stays 16 1/8 x 13 1/8 How are stays secured a nuts Working pressure by rules 250 Material of stays S.

Diameter at smallest part 2.53 Area supported by each stay 228 Working pressure by rules 220 Material of Front plates at bottom S.

Thickness 1" Material of Lower back plate S. Thickness 3/2 Greatest pitch of stays 14" Working pressure of plate by rules 200 lbs.

Diameter of tubes 3" Pitch of tubes 4 1/4 x 4 1/8 Material of tube plates S. Thickness: Front 1 Back 3/4 Mean pitch of stays 8 1/2 x 8 1/2

Pitch across wide water spaces 13 1/2" Working pressures by rules 210 Girders to Chamber tops: Material S. Depth and

thickness of girder at centre 8 1/2 x 12" Length as per rule 30 Distance apart 8 1/2 Number and pitch of stays in each 2 of 8 1/2"

Working pressure by rules 198 1/2 Superheater or Steam chest; how connected to boiler no Can the superheater be shut off and the boiler worked

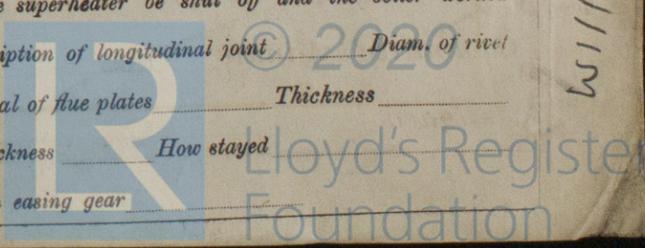
separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

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

1910-71117



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_  
 Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_  
 If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_  
 Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_  
 Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_  
 Working pressure of shell by rules \_\_\_\_\_ 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 \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *1 set connecting rod bolts & nuts. 1 set main bearing bolts & nuts. 1 set coupling bolts & nuts. 1 set feed and bilge pump valves. propeller & shaft. nuts bolts and assorted iron.*

The foregoing is a correct description, FOR THE WALLSEND SLIPWAY & ENGINEERING CO. LIMITED.  
 Manufacturer. *M. Minnall Secy*

Dates of Survey while building { During progress of work in shops - - } *1906 April 25. May 18-21. 22-30-31. June 15-21. July 1-10. 20-21-26-27-31.*  
 { During erection on board vessel - - } *August 9-11. 21-30.*  
 Total No. of visits *thirteen* Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *25/4* Slides *25/4* Covers *23/4* Pistons *23/4* Rods *11/5*  
 Connecting rods *11/5* Crank shaft *11/5* Thrust shaft *11/5* Tunnel shafts *11/5* Screw shaft *30/5* Propeller *30/5*  
 Stern tube *14/5 30/5* Steam pipes tested *23/7* Engine and boiler seatings *23/7* Engines holding down bolts *23/7*  
 Completion of pumping arrangements *30/7* Boilers fixed *23/7* Engines tried under steam *30/7*  
 Main boiler safety valves adjusted *30/7* Thickness of adjusting washers *P. p 32. S 3. C B 7/8 3 3/8 S 10 1/8 5 3/8*  
 Material of Crank shaft *S* Identification Mark on Do. *LR J.T.F 5/06* Material of Thrust shaft *S* Identification Mark on Do. *LR J.T.F 5/06*  
 Material of Tunnel shafts *✓* Identification Marks on Do. *✓* Material of Screw shafts *S* Identification Marks on Do. *LR J.T.F 5/06*  
 Material of Steam Pipes *Steel. Copper* Test pressure *360*

General Remarks (State quality of workmanship, opinions as to class, &c. *Machinery and boilers constructed under special survey. materials and workmanship good. engines and boilers examined under full steam and found satisfactory. In my opinion this vessel is now eligible for the record of L.M.C. 8/06.*)

*The boilers are fitted to burn liquid fuel with the Gles Rusden burners. an evaporator sufficient in size to make water is also fitted. examined under working conditions found in satisfactory working condition.*

*Machinery fitted aft.* It is submitted that this vessel is eligible for THE RECORD *L.M.C. 8.06* ELEC. LIGHT. *FITTED FOR LIQUID FUEL. 8.06*

The amount of Entry Fee... £ *2* : : When applied for.  
 Special ... £ *30.16* : : *3/9/06*  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ : :  
 J. Lindlay  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *FRI. 7 SEP 1906*  
 Assigned *+ L.M.C. 8.06*  
 Fitted for liquid fuel 8.06  
 MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to Newstead on June

