

# REPORT ON MACHINERY.

No. 6337

WED. JUL 31 1907

Port of *Relfast*

Received at London Office 19

No. in Survey held at *Relfast*  
Reg. Book. *S.S. Tara*  
on the

Date, first Survey *9<sup>th</sup> Nov 1906* Last Survey *25<sup>th</sup> June 1907*

(Number of Visits *67*)

Master *Relfast* Built at *Relfast* By whom built *Workegan Clark & Co* When built *1907*

Engines made at *Relfast* By whom made *-* when made *-*

Boilers made at *-* By whom made *-* when made *-*

Registered Horse Power *534* Owners *Lloyd Brasileiro S.A.* Port belonging to *Rio-de-Janeiro*

Nom. Horse Power as per Section 28 *534* Is Refrigerating Machinery fitted for cargo purposes *Yes* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Twin Screw, Triple Expansion* of Cylinders *6* No. of Cranks *6*

Dia. of Cylinders *18"-30"-49"* Length of Stroke *42"* Revs. per minute *100* Dia. of Screw shaft *12.13* Material of *S. Steel*  
as fitted *11.5* screw shaft

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 *Yes* 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 *46"*

Dia. of Tunnel shaft *9.85* as per rule *10.34* Dia. of Crank shaft journals *11.0* as fitted *11.0* Dia. of Crank pin *11* Size of Crank webs *19.5 x 7.5* Dia. of thrust shaft under

collars *11* Dia. of screw *12-6* Pitch of Screw *15-9* No. of Blades *3* State whether movable *Yes* Total surface *430 sq. ft.*

No. of Feed pumps *1* Diameter of ditto *4"* Stroke *21"* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *1* Diameter of ditto *4"* Stroke *21"* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *5* Sizes of Pumps *10.5 x 8 x 21* Duplex No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *4-3, 1-3.5* In Holds, &c. *6-3.5, 1-2.5*

No. of Bilge Injections *2* sizes *6* Connected to condenser, or to circulating pump *Yes* Is a separate Donkey Suction fitted in Engine room & size *Yes-3.5*

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 *None*

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 *Below*

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 *Fore hold suction* How are they protected *Wood casings*

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 *25-4-07* of Stern Tube *23-4-07* Screw shaft and Propeller *23-4-07*

Is the Screw Shaft Tunnel watertight *Letter to be* Is it fitted with a watertight door *Yes* worked from *Upper deck*

BOILERS, &c.—(Letter for record *S*) Manufacturers of Steel *Swart & Co & Nettleton*

Total Heating Surface of Boilers *8754 sq. ft.* Forced Draft fitted *Yes* No. and Description of Boilers *3-Single Ended Cyl.*

Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *15-3-07* No. of Certificate *393*

Can each boiler be worked separately *Yes* Area of fire grate in each boiler *74.5 sq. ft.* No. and Description of Safety Valves to

each boiler *Two-Event Springs* of each valve *12.50 sq. ft.* Pressure to which they are adjusted *180 lbs* Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *18 in* Mean dia. of boilers *16'-0"* Length *11'-9"* Material of shell plates *Steel*

Thickness *1.5* Range of tensile strength *28-32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *L.B. & T.*

long. seams *Butt Joints* Diameter of rivet holes in long. seams *1.5* Pitch of rivets *9.5* Lap of plates or width of butt straps *2.5*

Per centages of strength of longitudinal joint rivets *84.9* plate *94.3* Working pressure of shell by rules *207 lbs* Size of manhole in shell *16 x 12*

Size of compensating ring *3.5* No. and Description of Furnaces in each boiler *4-Rectangular* Material *Steel* Outside diameter *43.5*

Length of plain part *10* Thickness of plates *3.5* Description of longitudinal joint *Weld* No. of strengthening rings *1*

Working pressure of furnace by the rules *202 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *3.5* Back *3.5* Top *3.5* Bottom *3.5*

Pitch of stays to ditto: Sides *9.5 x 9.5* Top *9 x 8.5* If stays are fitted with nuts or riveted heads *Nuts inside* Working pressure by rules *198 lbs*

Material of stay *Steel* Diameter at smallest part *1.5* Area supported by each stay *76.5 sq. ft.* Working pressure by rules *203 lbs* plates in steam space:

Material *Steel* Thickness *1.5* Pitch of stays *9 x 16* How are stays secured *Nuts inside* Working pressure by rules *204 lbs* Material of stays *Steel*

Diameter at smallest part *2.15* Area supported by each stay *304 sq. ft.* Working pressure by rules *219 lbs* Material of Front plates at bottom *Steel*

Thickness *1* Material of Lower back plate *Steel* Thickness *3.5* Greatest pitch of stays *13.5* Working pressure of plate by rules *80 lbs*

Diameter of tubes *2.5* Pitch of tube *3.5 x 3.5* Material of tube plate *Steel* Thickness: Front *1.5* Back *1.5* Mean pitch of stays *1.5 x 1.5*

Pitch across wide water spaces *13.5* Working pressures by rules *185 lbs* Girders to Chamber tops: Material *Steel* Depth and

thickness of girder at centre *9 x (3 x 2)* Length as per rule *32.5* Distance apart *8.5* Number and pitch of stays in each *2-9*

Working pressure by rules *183 lbs* Superheater or Steam chest; how connected to boiler *-* 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 *-*

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:— Propellers left, 2 propeller blades, pair crank pin bushes, pair cross head bushes, air pump rod, bucket head valve seat, centrifugal pump fan spindle; sets H. P. M. P. piston rings & slide valve spindles etc. all sent to Lloyd's Rules etc.

The foregoing is a correct description,  
**FOR WORKMAN, CLARK & CO. LIMITED**  
 Manufacturer.

Dates of Survey while building: During progress of work in shops - 1906. Oct 9, 12, 14, 22, 24, 29, 31. Nov 1, 6, 12, 15, 20, 23, 26, 29, Dec 1.  
 During erection on board vessel - 4, 6, 13, 18, 21, 1907. Jan 3, 10, 11, 14, up till June 25<sup>th</sup>  
 Total No. of visits 67

Is the approved plan of main boiler forwarded herewith  See plan of 25.5.07

Is the approved plan of "donkey" boiler forwarded herewith  See plan of 25.5.07

Dates of Examination of principal parts—Cylinders 19<sup>th</sup> Slides 19<sup>th</sup> Covers 19<sup>th</sup> Rods 19<sup>th</sup>

Connecting rods 19<sup>th</sup> Thrust shaft 19<sup>th</sup> Tunnel shafts 19<sup>th</sup> Propeller 4-4-07

Stern tube 4-4-07 Steam pipes tested 16-8-07 Engine and boiler seatings 22-5-14 Engines holding down bolts 22-5-07

Completion of pumping arrangements 2-7-07 Boilers fixed 22-5-07 Engines tried under steam 24-5-07

Main boiler safety valves adjusted 24-5-07 Thickness of adjusting washers 12/18

Material of Crank shaft I. Steel Identification Mark on Do. 27-2-07 Material of Thrust shaft I. Steel Identification Mark on Do. 27-2-07

Material of Tunnel shafts I. Steel Identification Marks on Do. 27-2-07 Material of Screw shafts Do Identification Marks on Do. 21-3-07

Material of Steam Pipes W. Iron Test pressure 540 lbs

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

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship is of good description, and on trial under steam the machinery worked satisfactorily.

In my opinion, it is eligible for record + L.M.C. 6-07.

This installation is a duplicate of that fitted in the sister vessel "Cera".

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 6.07.

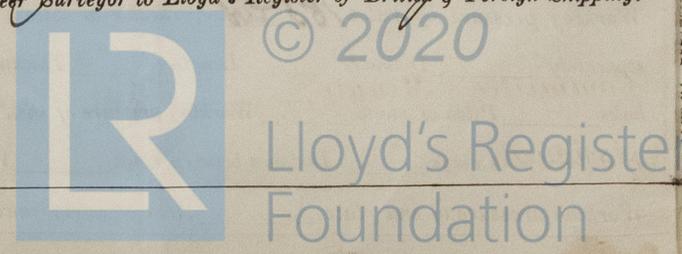
J. D.  
 Elec light  
 Ref track. JHC 1-8-07

The amount of Entry Fee..	£ 3 : 0 :	When applied for,	30-7-07
Special ..	£ 46 : 14 :	When received,	7-8-07
Donkey Boiler Fee ..	£ : :		
Travelling Expenses (if any) £	: :		

*R. J. Bennett*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. 2 AUG 1907  
 Assigned *Home 6.07*

MACHINERY CERTIFICATE WRITTEN.



Certificate (if required) to be sent to this office

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