

REPORT ON MACHINERY

No. 25377
TUES. 11 JUN 1907

Port of Glasgow

Received at London Office _____

No. in Survey held at Glasgow Date, first Survey 14 Jan'y Last Survey 31st May 1907

Reg. Book. 166 on the Steam Tug "Avestruz" (Number of Visits _____)

Master _____ Built at Greenock By whom built Greenock & Branganmouth Tons { Gross _____ Net _____ When built 1907

Engines made at Glasgow By whom made David Rowan & Co when made 1907

Boilers made at do By whom made do when made 1907

Registered Horse Power _____ Owners _____ Port belonging to Buenos Ayres

Nom. Horse Power as per Section 28 6H Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

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

Dia. of Cylinders 11-18-30 Length of Stroke 22" Revs. per minute _____ Dia. of Screw shaft as per rule 6.78 Material of Iron as fitted 6.78 screw shaft

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 no If two liners are fitted, is the shaft lapped or protected between the liners Painted Length of stern bush 2-4"

Dia. of Tunnel shaft as per rule 5.66 Dia. of Crank shaft journals as per rule 5.9H Dia. of Crank pin 6" Size of Crank webs 4" Dia. of thrust shaft under collars 6 3/4" Dia. of screw 8-0" Pitch of Screw 8-6" No. of Blades 3 State whether moveable No Total surface 2.5 #

No. of Feed pumps 1 Diameter of ditto 2 1/2" Stroke 11" Can one be overhauled while the other is at work no

No. of Bilge pumps 1 Diameter of ditto 2 1/2" Stroke 11" Can one be overhauled while the other is at work no

No. of Donkey Engines 3 Sizes of Pumps 5x5x6 5 1/2 x 3 1/2 x 6 4 x 2 1/2 x 4 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 3-2" In Holds, &c. 1-2 1/2" each hold

No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump no 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 no

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 Four Suctions How are they protected Under Ceiling

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 _____ of Stern Tube _____ Screw shaft and Propeller In Greenock Report

Is the Screw Shaft Tunnel watertight None, but space under cabin. Is it fitted with a watertight door _____ worked from _____

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel The Clyde Bridge Steel Works

Total Heating Surface of Boilers 1260 # Is Forced Draft fitted no No. and Description of Boilers One Single Ended

Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 19/4/07 No. of Certificate 8926

Can each boiler be worked separately no Area of fire grate in each boiler 49.8 # (49.5) No. and Description of Safety Valves to each boiler 2 Spring Area of each valve 5.9 # Pressure to which they are adjusted 185 lb Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork Abt 12" Mean dia. of boilers 12-0 Length 10-0 Material of shell plates steel

Thickness 1 1/32" Range of tensile strength 28.2-31.7 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D. R. L long. seams D. B. S. Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 7 3/16" Lap of plates or width of butt straps 15 3/4"

Per centages of strength of longitudinal joint rivets 88.8 Working pressure of shell by rules 195 lb Size of manhole in shell 16" x 12" plate 85.21

Size of compensating ring 2-7 x 2-3 No. and Description of Furnaces in each boiler 3 plain Material steel Outside diameter 2-10 5/8"

Length of plain part top 6.8 Thickness of plates crown 1 1/16" Description of longitudinal joint weld No. of strengthening rings none bottom 1 1/16"

Working pressure of furnace by the rules 205 Combustion chamber plates: Material steel Thickness: Sides 19/32" Back 5/8" Top 19/32" Bottom 15/16"

Pitch of stays to ditto: Sides 7 x 7 7/8" Back 7 1/2 x 7 7/8" Top 7 x 7 7/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 220 lb

Material of stays steel Diameter at smallest part 1 1/4" Area supported by each stay 57 # Working pressure by rules 230 End plates in steam space: Material steel Thickness 17/32" Pitch of stays 19 1/2 x 15 1/2" How are stays secured D. rule Working pressure by rules 215 lb Material of stays steel

Diameter at smallest part 6.41 Area supported by each stay 310 # Working pressure by rules 205 Material of Front plates at bottom steel

Thickness 7/8" Material of Lower back plate steel Thickness 13/16" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 187 lb

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 3/8" Material of tube plates steel Thickness: Front 7/8" Back 13/16" Mean pitch of stays 8 7/8"

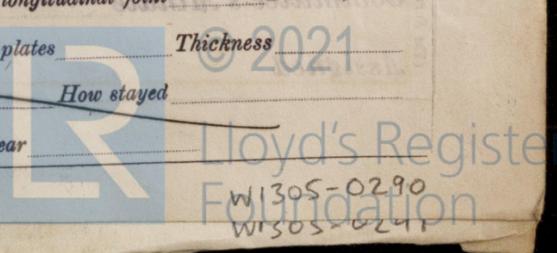
Pitch across wide water spaces 13 1/4" Working pressures by rules 190 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8 x 3 1/4 x 2 Length as per rule 28" Distance apart 7 7/8" Number and pitch of stays in each 3-7"

Working pressure by rules 192 Superheater or Steam chest; h/w 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 _____

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 *Cochran* *See Rpt. 5*
 Made at *Arman* By whom made *Cochran & Co* When made *1907* Where fixed *Sto. Rehold*
 Working pressure *80* tested by hydraulic pressure to *160* Date of test *12/14/07* No. of Certificate *8888* Fire grate area _____ Description of Safety
 Valves *Spring* No. of Safety Valves *2* Area of each *3.14* Pressure to which they are adjusted *85 lb* Date of adjustment *18/5/07*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* 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:— *Propeller, Tail shaft, Crank shaft, 2 top end bolts, 2 bottom end bolts, 2 main bearing bolts, set of coupling bolts, feed & bridge valves, etc.*

The foregoing is a correct description,

For David Howard Manufacturer.

Dates of Survey while building { During progress of work in shops - - } *1907 Jan 14 16 21 24 Feb 12 14 22 Mar 12 22 April 19 26 30 May*
 { During erection on board vessel - - } _____
 Total No. of visits *15* Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *No.*

Dates of Examination of principal parts—Cylinders *22/3/07* Slides *22/3/07* Covers *22/3/07* Pistons *22/3/07* Rods *22/3/07*
 Connecting rods *22/3/07* Crank shaft *28/2/07* Thrust shaft *28/2/07* Tunnel shafts *28/2/07* Screw shaft *28/2/07* Propeller *28/2/07*
 Stern tube *28/2/07* Steam pipes tested *30/11/07* Engine and boiler seatings *18/5/07* Engines holding down bolts *18/5/07*
 Completion of pumping arrangements *24/5/07* Boilers fixed *18/5/07* Engines tried under steam *18/5/07*
 Main boiler safety valves adjusted *18/5/07* Thickness of adjusting washers *9. B. 3/4 5/16 273 9/16*
 Material of Crank shaft *Iron* Identification Mark on Do. *(H.S)* Material of Thrust shaft *Iron* Identification Mark on Do. *(H.S)*
 Material of Tunnel shafts *Iron* Identification Marks on Do. *(H.S)* Material of Screw shafts *Iron* Identification Marks on Do. *(H.S)*
 Material of Steam Pipes *Copper* Test pressure *360 lb.*

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

The engines & boilers of this vessel have been constructed under Special Survey & are of good materials & workmanship. They have been securely fitted on board & satisfactorily tried under steam.

This vessel is in my opinion eligible to have notation
** L M C 5.07 in the Register Book.*

It is submitted that this vessel is eligible for this notation L.M.C. 5.07

The amount of Entry Fee... £ 1 : : When applied for, _____
 Special ... £ 9 : 12 : : _____
 Donkey Boiler Fee ... £ : : : _____
 Travelling Expenses (if any) £ : : : _____

H. Gardner-Smith
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *C. Pasgood 10 JUN 1907*

Assigned *R. M. C. 5.07*

MACHINE CERTIFICATE WRITTEN, 11.6.07

