

# REPORT ON MACHINERY.

No. 16096

Received at London Office

WED. SEP. 20. 1911

Date of writing Report 19 When handed in at Local Office 13/9/10 Port of Greenock

No. in Survey held at Port Glasgow. Date, First Survey 10<sup>th</sup> Nov. 1910. Last Survey 12<sup>th</sup> Sept. 1911.  
Reg. Book. (Number of Visits 68.)

on the PORT OF LONDON AUTHORITY HOPPER N<sup>o</sup> 12.

Tons } Gross 583  
Net 224  
When built 1911.

Master Built at Port Glasgow By whom built Ferguson Bros.

Engines made at Port Glasgow By whom made Ferguson Bros. when made 1911.

Boilers made at Port Glasgow By whom made Clyde S. Eng. Co. Ltd. when made 1911.

Registered Horse Power Owners Port of London Authority Port belonging to London

Nom. Horse Power as per Section 28 133. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

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

Dia. of Cylinders 15 1/2 - 25 1/2 - 42 Length of Stroke 24" Revs. per minute 120 Dia. of Screw shaft as per rule 8 1/4" Material of screw shaft Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liners 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' 1"

Dia. of Tunnel shaft as per rule 4.61" Dia. of Crank shaft journals as per rule 4.99" Dia. of Crank pin 8 1/4" Size of Crank webs 15 1/2 x 5 1/4" Dia. of thrust shaft under

collars 8 1/2" Dia. of screw 9' 9" Pitch of Screw 11' 3" No. of Blades 4. State whether moveable Yes. Total surface 29 sq. ft.

No. of Feed pumps 2 Diameter of ditto 5 1/2" Stroke 15" Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 Diameter of ditto 3" Stroke 13 1/2" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines one Sizes of Pumps 6" x 6" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 1-2 1/2" dia. 2-2" dia. In Holds, &c. FOREHOLD: 1-2" dia. N<sup>o</sup> 1 COMP. PORT: 1-2" dia.

N<sup>o</sup> 2 COMP. PORT: 1-2" dia. N<sup>o</sup> 1 COMP. STARBOARD: 1-2" dia. N<sup>o</sup> 1 COMP. STARBOARD: 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: 2 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 Aft.

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 Forward Suctions How are they protected Cased in.

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 21/8/11 of Stern Tube 21/8/11 Screw shaft and Propeller 21/8/11

Is the Screw Shaft Tunnel watertight No. Is it fitted with a watertight door No. worked from No.

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Steel Coy of Scotland

Total Heating Surface of Boilers 2500 sq. ft. Is Forced Draft fitted No. No. and Description of Boilers 2: Cylindrical 5: End.

Working Pressure 180 lb. Tested by hydraulic pressure to 360 lb. Date of test 12/6/11. No. of Certificate 1013.

Can each boiler be worked separately Yes. Area of fire grate in each boiler 40 sq. ft. No. and Description of Safety Valves to

each boiler 2: Direct Spring Area of each valve 3.98 sq. in. 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 4' 6" Mean dia. of boilers 11' 9" Length 10' 6" Material of shell plates Steel.

Thickness 1 1/8". Range of tensile strength 28 to 32 tons. Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Lap Double

long. seams D/B Shear. Diameter of rivet holes in long. seams 1 1/8". Pitch of rivets 8" 4". Lap of plates or width of butt straps 16 1/4".

Per centages of strength of longitudinal joint rivets 8% plate 85-9% Working pressure of shell by rules 201 lb. Size of manhole in shell 16" x 12"

Size of compensating rings 8" x 12" No. and Description of Furnaces in each boiler 2: Deighton's Material Steel Outside diameter 48 1/4"

Length of plain part top 8' 9" bottom 8' 6" Thickness of plates crown 1 1/8" bottom 1 1/4" Description of longitudinal joint Weld. No. of strengthening rings None.

Working pressure of furnace by the rules 195 lb. Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 1 1/8"

Pitch of stays to ditto: Sides 8 1/4" x 8 1/4" Back 8" x 9" Top 8" x 7" If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 188 lb.

Material of stays Steel Diameter at smallest part 1 5/8" Area supported by each stay 42 sq. in. Working pressure by rules 255 lb. End plates in steam space:

Material Steel Thickness 1 5/16" Pitch of stays 16" x 16" How are stays secured D/B nuts Working pressure by rules 194 lb. Material of stays Steel

Diameter at smallest part 2 1/2" Area supported by each stay 240 sq. in. Working pressure by rules 228 lb. Material of Front plates at bottom Steel

Thickness 1 5/16" Material of Lower back plate Steel Thickness 1 1/8" Greatest pitch of stays 13 1/4" Working pressure of plate by rules 182 lb.

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 1 5/16" Back 1 1/8" Mean pitch of stays 11 1/2"

Pitch across wide water spaces 13 1/4" Working pressures by rules 180 lb. 186 lb. Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 8 1/4" x 1 1/2" Length as per rule 29 3/4" Distance apart 8" Number and pitch of stays in each 3: 4"

Working pressure by rules 204 lb. 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

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. *None* 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 \_\_\_\_\_ Radius of do. \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— *1 Piston Rod. 1 set Crank pin Bushes 24 Condenser tubes  
 1 set Packing Rings for each Piston. 1 Air pump Rod. 2 Crank pin Bolts, 2 Crosshead  
 Bolts. 2 main Bearing Bolts, 1 set Coupling Bolts. 1 set Feed pump valves & set  
 Bilge pump valves. Bolt nuts 1 Iron gear wheel & cog.*

The foregoing is a correct description,

Manufacturer. *Wynson Bros.*

Dates of Survey while building	During progress of work in shops - -	1910. Nov. 10. 15. 18. 23. 25. 29. Dec. 2. 5. 7. 13. 16. 19. 21. 23. 26. 28. 1911. Jan. 6. 11. 18. 23. 24. Feb. 10. 21. 24. 28. Mar. 2. 5. 6.
	During erection on board vessel - - -	9. 14. 17. 20. 23. 27. 31. Apr. 4. 6. 11. 13. 17. 20. 25. 28. May. 1. 3. 8. 10. 16. 17. 19. 29. June 3. 12. 13. 16. 28. July 4. 17. 24. Aug. 3. 7. 11. 21. 28. 30. 14th Sept. 7. 12.
	Total No. of visits	68

Is the approved plan of main boiler forwarded herewith *Yes*

Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*  
**Dates of Examination of principal parts**—Cylinders *4/7/11* Slides *3/8/11* Covers *7/9/11* Pistons *3/8/11* Rods *4/7/11*  
 Connecting rods *4/7/11* Crank shaft *24/6/11* Thrust shaft *24/6/11* Tunnel shafts \_\_\_\_\_ Screw shaft *18/11* Propeller *4/7/11*  
 Stern tube *28/6/11* Steam pipes tested *7/8/11* Engine and boiler seatings *21/8/11* Engines holding down bolts *20/8/11*  
 Completion of pumping arrangements *7/9/11* Boilers fixed *20/8/11* Engines tried under steam *7/9/11*.  
 Main boiler safety valves adjusted *20/8/11*. Thickness of adjusting washers *Starboard P.V. 7/8" S.V. 7/8" Port P.V. 7/8" S.V. 7/8"*  
 Material of Crank shaft *Steel* Identification Mark on Do. *1015* Material of Thrust shaft *Steel* Identification Mark on Do. *1015*  
 Material of Tunnel shafts *✓* Identification Marks on Do. *✓* Material of Screw shafts *Steel* Identification Marks on Do. *1015*  
 Material of Steam Pipes *Copper* Test pressure *400 lbs.*

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

*The engines and boilers of this vessel were built under special survey and the materials and workmanship are good. They were subsequently examined while running full power trials in the Firth and found to work satisfactorily.*

*The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of **LMC 9.11** marked in the Society's Register Book.*

*It is submitted that this vessel is eligible for THE RECORD. LMC 9.11*

*APR 24/9/11*

The amount of Entry Fee	.. £ 2 : : : .	When applied for,	13/9/1911
Special	.. .. £ 19 . 19 : : .	When received,	15/9/1911
Donkey Boiler Fee	.. .. £ : : : .		
Travelling Expenses (if any)	£ : : : .		

*Wm R. Austin*  
 Engineer & Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **GLASGOW 19 SEP 1911**  
 Assigned **LMC 9.11**

*Greenock*

Certificate (if required) to be sent to

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

