

# REPORT ON MACHINERY.

Received at London Office  
PLYMOUTH

Date of writing Report 25-4-14 When handed in at Local Office 19 Port of PLYMOUTH MON. APR. 27. 1914  
 No. in Survey held at Dartmouth Date, First Survey 19<sup>th</sup> March Last Survey 9<sup>th</sup> April 1914  
 Reg. Book. on the Wood screw tug & cargo launch "Laflo" (Number of Visits Five)  
 Master ✓ Built at Dartmouth By whom built Philip Son Ltd. Tons ✓ Gross Not When built 1914  
 Engines made at Dartmouth By whom made Philip Son Ltd. when made 1914  
 Boilers made at Dartmouth By whom made Philip Son Ltd. when made 1914  
 Registered Horse Power 144 Owners The Bethlehem Chile Iron Mines Co. Ltd. Port belonging to Cruz Grande  
 Nom. Horse Power as per Section 28 144 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

**ENGINES, &c.**—Description of Engines Compound surface condensing vertical type No. of Cylinders Two No. of Cranks Two  
 Dia. of Cylinders 4 1/2 x 15 Length of Stroke 12 Revs. per minute 230 Dia. of Screw shaft 3 1/2 Material of screw shaft Mild Steel  
 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 ✓ 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 Painted Length of stern bush 1-2 3/4  
 Dia. of Intermediate shaft 3 3/8 as per rule 3 26 Dia. of Crank shaft journals 3 3/4 as per rule 3 43 Dia. of Crank pin 4 Size of Crank webs 4 1/2 x 2 1/2 Dia. of thrust shaft under collars 3 3/4 Dia. of screw 4-0 Pitch of Screw 5-6 No. of Blades 4 State whether moveable no Total surface 709 ft.  
 No. of Feed pumps one Diameter of ditto 1 1/2 Stroke 6 Can one be overhauled while the other is at work ✓  
 No. of Bilge pumps one Diameter of ditto 1 1/2 Stroke 6 Can one be overhauled while the other is at work ✓  
 No. of Donkey Engines one Sizes of Pumps 2 1/2 steam, 1 1/2 water, 3 stroke No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room one to Bilge pumps 2" dia, one to Donkey pump 2" In Holds, &c. none  
 No. of Bilge Injections one sizes 2 Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room of size no  
 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 Valves, cocks on Blow down.  
 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 blanking 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  
 Dates of examination of completion of fitting of Sea Connections 3 April of Stern Tube 26 Mar Screw shaft and Propeller 26 Mar  
 Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door ✓ worked from ✓

**BOILERS, &c.**—(Letter for record ) Manufacturers of Steel I.S.B.  
 Total Heating Surface of Boilers 325 sqft Is Forced Draft fitted no No. and Description of Boilers one steel return tube type  
 Working Pressure 140 lbs Tested by hydraulic pressure to 280 lbs Date of test 26 Mar 14 No. of Certificate 193  
 Can each boiler be worked separately ✓ Area of fire grate in each boiler 12 sqft No. and Description of Safety Valves to each boiler 2 Spring Loaded Area of each valve 2 1/4 dia Pressure to which they are adjusted 140 Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 4 Mean dia. of boilers 6-5 3/32 Length 6-5 7/16 Material of shell plates Mild Steel  
 Thickness 17/32 Range of tensile strength 28/32 tons Are the shell plates welded or flanged flanged Descrip. of riveting: cir. seams Rapped Single Riveted.  
 long. seams Double Rivet Diameter of rivet holes in long. seams 13/16 Pitch of rivets 3 1/2 Lap of plates width of butt straps 8 1/4  
 Per centages of strength of longitudinal joint rivets 94.9 plate 76.8 Working pressure of shell by rules 154 Size of manhole in shell 16 x 12  
 Size of compensating ring 6 x 5/8 No. and Description of Furnaces in each boiler one plain Material Mild Steel Outside diameter 3-0  
 Length of plain part top 3 1/2 Thickness of plates bottom 3/8 Description of longitudinal joint Welded No. of strengthening rings none  
 Working pressure of furnace by the rules 156 Combustion chamber plates: Material Mild Steel Thickness: Sides 3/16 Back 9/16 Top 7/16 Bottom 7/16  
 Pitch of stays to ditto: Sides 9 1/2 Back 8 x 8 Top 7 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 170  
 Material of stays Mild Steel Diameter at smallest part 1 1/8 Area supported by each stay 64 sqin Working pressure by rules 140 End plates in steam space:  
 Material Mild Steel Thickness Back 9/16 Pitch of stays 14 How are stays secured Double Nuts Working pressure by rules 164 Material of stays Mild Steel  
 Diameter at smallest part 1 7/8 Area supported by each stay 196 Working pressure by rules 146 Material of Front plates at bottom Front plate in one piece  
 Thickness ✓ Material of Lower back plate one piece Thickness ✓ Greatest pitch of stays 8 x 8 Working pressure of plate by rules ✓  
 Diameter of tubes 2 1/2 Pitch of tubes 3 1/2 @ 60 Material of tube plates Mild Steel thickness: Front 5/8 Back 5/8 Mean pitch of stays 16 1/2 x 9  
 Pitch across wide water spaces ✓ Working pressures by rules 147 Girders to Chamber tops: Material Mild Steel Depth and thickness of girder at centre 5 1/2 x 2 plates Length as per rule 16 Distance apart 9 1/2 Number and pitch of stays in each one  
 Working pressure by rules ✓ 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. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fired \_\_\_\_\_

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Sa \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with casing 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 valve, 1 spare set of piston rings for H.P. and L.P., 1 tail shaft, 1 propeller, 1 set top end bearings and bolts, 1 set bottom end bearings and bolts

The foregoing is a correct description,

For PHILIP & SON, LIMITED

Manufacturer.

*Getowell Philip*

MANAGING DIRECTOR.

Dates of Survey while building { During progress of work in shops -- }  
 { During erection on board vessel -- }  
 Total No. of visits \_\_\_\_\_

April 3.4.9.  
 Five

Is the approved plan of main boiler forwarded herewith Yes ✓

Dates of Examination of principal parts—Cylinders  $\frac{9}{4}$  Slides  $\frac{9}{4}$  Covers  $\frac{9}{4}$  Pistons  $\frac{9}{4}$  Rods  $\frac{9}{4}$

Connecting rods  $\frac{9}{4}$  Crank shaft  $\frac{19}{3} \cdot \frac{9}{4}$  Thrust shaft ~~Formed in~~ Funnel shafts  $\frac{19}{3} \cdot \frac{9}{4}$  Screw shaft  $\frac{19}{3} \cdot \frac{9}{4}$  Propeller  $\frac{19}{3}$

Stern tube  $\frac{19}{3}$  Steam pipes tested 19926 lbs Engine and boiler seatings  $\frac{19}{3}$  Engines holding down bolts  $\frac{3}{4}$

Completion of pumping arrangements 9.4.14 Boilers fixed 3.4.14 Engines tried under steam 9.4.14

Main boiler safety valves adjusted 9.4.14 Thickness of adjusting washers P 95  $\frac{11}{32}$

Material of Crank shaft Mild Steel Identification Mark on Do. ✓ Material of Thrust shaft Formed in Identification Mark on Do. ✓

Material of Funnel shafts Mild Steel Identification Marks on Do. ✓ Material of Screw shafts Mild Steel Identification Marks on Do. ✓

Material of Steam Pipes Copper Test pressure 280 lbs ✓

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

The machinery and Boiler of this vessel are in good and efficient condition; the Boiler has been tested by water pressure to 280 lbs and is tight under steam at 140 lbs per sq. The machinery and Boiler worked very satisfactorily under steam when tried for about 1½ hrs under way, oil fuel being used in the furnace. The quality of workmanship of the machinery & Boiler is very good and it is submitted that the Machinery & Boiler may be favourably considered by the Committee for **L M C.**

It is submitted that this vessel is eligible for THE RECORD + L M C 4.14

Fitted for oil fuel 4.14. F.P. above 150°F.

*J.P.R.*  
*J.W.*  
 28/4/14

The amount of Entry Fee .. £ 1	When applied for, 25-4-14
Special .. £ 8	When received, 30/4/14
Donkey Boiler Fee .. £	
Travelling Expenses (if any) £ 2	

*W. Lang*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute Assigned

FRI. MAY. 1 - 1914

FRI. MAY. 22. 1914

+ L M C 4.14  
 Fitted for Oil Fuel 4.14 F.P. above 150°F



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Certificate (if required) to be sent to the Registrar of Shipping or to the Registrar of the Committee's Minute.