

REPORT ON MACHINERY.

No. 23631

Mdb No 5413

FRI. 6 MAR 1908

MON. 30 MAR 1908

Port of *Sunderland*

Received at London Office

No. in Survey held at *Sunderland*Date, first Survey *11th Oct 1904*Last Survey *3rd March 1908*

Reg. Book.

on the *Twin Screw Steamer "Baro"*(Pub) *25th Jan*(Number of Vols) *38**20th Mar 1908*

Master

Built at *Middlesbrough* By whom built *Messrs W. Harkness & Sons Ltd*

Tons

Gross

Net

When built *1908*Engines made at *Sunderland*By whom made *Messrs Mac Coll & Pollock*When made *1908*Boilers made at *Sunderland*By whom made *Messrs Mac Coll & Pollock*When made *1908*

Registered Horse Power

Owners

Port belonging to

Nom. Horse Power as per Section 28 *132*

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted *Yes*ENGINES, &c.—Description of Engines *Inverted triple expansion (2 Sets)* No. of Cylinders *3 to each* No. of Cranks *3 to each*Dia. of Cylinders *13" 21" 34"*Length of Stroke *24"*Revs. per minute *100*

Dia. of Screw shaft

as per rule *6.53"*Material of *Steel*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 *3.03"*

Dia. of Tunnel shaft

as per rule *6.21"*

Dia. of Crank shaft journals

as per rule *6.53"*Dia. of Crank pin *6.5"*Size of Crank webs *4 1/2" x 1 1/2"*

Dia. of thrust shaft under

collars *6 7/8"*Dia. of screws *2 1/2"*Pitch of Screw *11.6"*No. of Blades *4*State whether moveable *No*Total surface *25 1/2"*

to each

No. of Feed pumps *one to each*Diameter of ditto *3"*Stroke *12"*Can one be overhauled while the other is at work *Yes*No. of Bilge pumps *one to each*Diameter of ditto *3"*Stroke *12"*Can one be overhauled while the other is at work *Yes*No. of Donkey Engines *2*Sizes of Pumps *7 1/2" x 4" x 6" + 3" x 6" x 6"*

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *3 of 2" 4 of 2 1/2"*In Holds, &c. *Two 2" fore hold three 2" after hold.*No. of Bilge Injections *2*sizes *3"*Connected to condenser, or to circulating pump *Yes*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 *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

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 *11/2/08*of Stern Tube *19.2.08*Screw shaft and Propeller *19.2.08*Is the Screw Shaft Tunnel watertight *Yes*Is it fitted with a watertight door *Yes*worked from *Upper platform*BOILERS, &c.—(Letter for record *S*)Manufacturers of Steel *W. Beardmore & Co*Total Heating Surface of Boilers *2265*Is Forced Draft fitted *no*No. and Description of Boilers *2 S.E. Cylindrical Mult?*Working Pressure *160 lbs*Tested by hydraulic pressure to *220 lbs*Date of test *16.1.08*No. of Certificate *2688*Can each boiler be worked separately *Yes*Area of fire grate in each boiler *36.6*

No. and Description of Safety Valves to

each boiler *2 spring*Area of each valve *3.97*Pressure to which they are adjusted *165 lbs*Are they fitted with easing gear *Yes*Smallest distance between boilers or uptakes and bunkers or woodwork *12"*Mean dia. of boilers *11.6"*Length *10.4"*Material of shell plates *steel*Thickness *15/16"*Range of tensile strength *20/32*Are the shell plates welded or flanged *no*Descrip. of riveting: cir. seams *d. r. lap.*long. seams *5 x 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 7/8"*

Per centages of strength of longitudinal joint

rivets *97.8*plate *85.2*Working pressure of shell by rules *176.59 lbs*Size of manhole in shell *19 x 14 1/2"*Manhole *16 x 12"*Size of compensating ring *15"*and Description of Furnaces in each boiler *2 Brown & Napier*Material *steel*Outside diameter *41"*

Length of plain part

top *1"*

Thickness of plates

crown *1 1/2"*Description of longitudinal joint *weld*No. of strengthening rings *Yes*Working pressure of furnace by the rules *169.7 lbs*Combustion chamber plates: Material *steel*Thickness: Sides *1 1/16"*Back *1 1/16"*Top *1 1/16"*Bottom *7/8"*Pitch of stays to ditto: Sides *9 1/2" x 10"*Back *9 1/2" x 10"*Top *9 1/2" x 9 1/2"*If stays are fitted with nuts or riveted heads *nuts*Working pressure by rules *171.7 lbs*Material of stays *steel*Diameter at smallest part *2.03"*Area supported by each stay *9.5"*Working pressure by rules *192.3 lbs*

End plates in steam space:

Material *steel*Thickness *1"*Pitch of stays *16 1/2" x 16 1/2"*How are stays secured *d. n. w.*Working pressure by rules *164.5 lbs*Material of stays *steel*Diameter at smallest part *5.25"*Area supported by each stay *272.25"*Working pressure by rules *192 lbs*Material of Front plates at bottom *steel*Thickness *25/32"*Material of Lower back plate *steel*Thickness *15/16"*Greatest pitch of stays *13 3/4" x 9 1/2"*Working pressure of plate by rules *163.3 lbs*Diameter of tubes *3 1/4"*Pitch of tubes *4 1/2" x 4 1/2"*Material of tube plates *steel*Thickness: Front *25/32"*Back *25/32"*Mean pitch of stays *9 x 13 1/2"*Pitch across wide water spaces *14"*Working pressures by rules *221 lbs*Girders to Chamber tops: Material *steel*

Depth and

thickness of girder at centre *7 1/2" x 15 1/2"*Length as per rule *27 1/2"*Distance apart *9 7/8"*Number and pitch of stays in each *2-9 1/2"*Working pressure by rules *161 lbs*Superheater or Steam chest; how connected to boiler *Yes*

Can the superheater be shut off and the boiler worked

separately *Yes*Diameter *Yes*Length *Yes*Thickness of shell plates *Yes*Material *Yes*Description of longitudinal joint *Yes*

Diam. of rivet

holes *Yes*Pitch of rivets *Yes*Working pressure of shell by rules *Yes*Diameter of flue *Yes*Material of flue plates *Yes*Thickness *Yes*If stiffened with rings *Yes*Distance between rings *Yes*Working pressure by rules *Yes*End plates: Thickness *Yes*How stayed *Yes*Working pressure of end plates *Yes*Area of safety valves to superheater *Yes*Are they fitted with easing gear *Yes*

Foundation

W1121-0126

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:— Propeller shaft, 2 Propellers, 1 H. Valve spindle, 1 L.P. Valve spindle, 2 sets Crank pin braces, 2 top end, 2 bottom end, 2 main bearings & 1 set of coupling bolts, 1 Air pump rod, 1 set feed and bilge pump Valves, 1 set piston rings for each piston, Bolts & Nuts assorted and iron of sizes

The foregoing is a correct description,

Manufacturer.

Hugo MacCall

Dates of Survey while building
During progress of work in shops— 1904 Oct 11, 16, 23, 29, Nov 4, 8, 11, 14, 20, 25, 28 Dec 3, 5, 11, 13, 16, 18, 20, 24, 30, Jan 3, 4, 11, 13, 15, 16, 22, 29, 31,
During erection on board vessel — Feb 11, 14, 19, 21, 24, 25, 27, 29, March 3,
Total No. of visits 38. (Mdb) 3
Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 25.11.07 Slides 28.11.07 Covers 20.11.07 Pistons 3.12.07 Rods 5.12.07
Connecting rods 16.12.07 Crank shaft 16.12.07 Thrust shaft 11.12.07 Tunnel shafts 13.1.08 Screw shaft 17.2.08 Propeller 22.1.08
Stern tube 25.11.07 Steam pipes tested 21 & 24.2.08 Engine and boiler seatings 17.2.08 Engines holding down bolts 21.2.08
Completion of pumping arrangements 29.2.08 Boilers fixed 21.2.08 Engines tried under steam 29.2.08
Main boiler safety valves adjusted 29.2.08 Thickness of adjusting washers P.S. 3/8", P.P. 13/32", S.S. 3/8", S.P. 11/32"
Material of Crank shaft Steel Identification Mark on Do. 196 J.W.D. Material of Thrust shaft Steel Identification Mark on Do. 6002 J.M. 45 R.M.
Material of Tunnel shafts Steel Identification Marks on Do 3679, 3680, 3681 J.M. Material of Screw shafts Steel Identification Marks on Do. 3660 3671 K.H. 5998 J.M.
Material of Steam Pipes Copper Test pressure 400 lbs

General Remarks (State quality of workmanship, opinions as to class, &c. The Machinery of this vessel has been constructed under special survey, the workmanship and materials used are both of good quality, the Engines have been tried under steam ahead & astern and worked satisfactorily

We beg to recommend that this vessel is eligible in our opinion to have the record L.M.C. 3-08 in the Register Book

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 3.08.

ELEC. LIGHT. 30.3.08.

The amount of Entry Fee. £ 2 : 0 : 0 When applied for,
Special .. £ 19 : 19 : 0 5.3.08
Donkey Boiler Fee .. £ : : :
Travelling Expenses (if any) £ : : : 14.3.1908

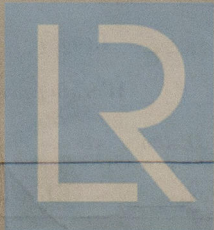
Committee's Minute

Assigned

TUES 31 MAR 1908

+ L.M.C. 3.08
elec. light

R. W. Coombes
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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MACHINERY CERTIFICATE WRITTEN.