

REPORT ON MACHINERY.

Port of Sunderland

Received at London Office MON. 7 MAR 1904

No. in Survey held at Sunderland

Date, first Survey 20 Oct 03 Last Survey 19 Feby 1904

Reg. Book.

on the Steel Screw Steamer "Torrise"

(Number of Visits)

Tons { Gross 502
Net 293

Master C. Ruault Built at Sunderland By whom built Sunderland S.B.C. Ltd.

When built 1904

Engines made at Sunderland By whom made McCull + Pollock Ltd. when made 1904

Boilers made at Sunderland By whom made McCull + Pollock Ltd. when made 1904

Registered Horse Power _____ Owners R. Bigo Port belonging to Balais

Nom. Horse Power as per Section 28 82 Is Refrigerating Machinery fitted no Is Electric Light fitted no

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

Dia. of Cylinders 13 1/2 - 22 - 37 Length of Stroke 24 Revs. per minute 90 Dia. of Screw shaft 7 1/2 Material of Engt 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 _____ 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 _____ Length of stern bush 2-4 1/2

Dia. of Tunnel shaft 6 1/4 Dia. of Crank shaft journals 4 1/2 Dia. of Crank pin 4 1/4 Size of Crank webs 1 1/2 x 4 1/8 Dia. of thrust shaft under

collars 4 1/4 Dia. of screw 9-6 Pitch of screw 12-0 No. of blades four State whether moveable no Total surface 38.5

No. of Feed pumps Two Diameter of ditto 2 1/4 Stroke 12 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 2 1/4 Stroke 12 Can one be overhauled while the other is at work yes

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

In Engine Room Two 2" mips, one Centre 2" In Holds, &c. Main Hold Two 2" mips,

after Hold Two 2" mips, after well 2" Centre

No. of bilge injections one sizes 3 Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room & size yes 3"

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 sure

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Valves

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock 29 July 1904 Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from Top platform

BOILERS, &c.— (Letter for record (S) Total Heating Surface of Boilers 1393.5 Is forced draft fitted no

No. and Description of Boilers one single ended 2 plain furn. Working Pressure 180 lb. Tested by hydraulic pressure to 360 lb.

Date of test 21/12/03 Can each boiler be worked separately _____ Area of fire grate in each boiler 41.4 No. and Description of safety valves to

each boiler Two direct spring Area of each valve 4.910 Pressure to which they are adjusted 180 lb. Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 12-6 Length 10-0 Material of shell plates steel

Thickness 1 1/2 Range of tensile strength 28 1/2 Are they welded or flanged no Descrip. of riveting: cir. seams L.S.R. long. seams S.B.S.-TR

Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 7 3/4 Lap of plates or width of butt straps 15 3/4

Per centages of strength of longitudinal joint rivets 92.5 Working pressure of shell by rules 182.9 Size of manhole in shell end 16 x 12

Size of compensating ring flanged No. and Description of Furnaces in each boiler Two plain Material steel Outside diameter 43

Length of plain part top 45 bottom 81 Thickness of plates crown 49 bottom 64 Description of longitudinal joint Welded No. of strengthening rings one

Working pressure of furnace by the rules 182.9 Combustion chamber plates: Material steel Thickness: Sides 1/2 Back 1/2 Top 1/2 Bottom 1/8

Pitch of stays to ditto: Sides 8 1/2 x 10 1/2 Back 9 1/2 x 9 1/2 Top 8 x 9 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 183 lb.

Material of stays steel Diameter at smallest part 1.07 + 1.63 Area supported by each stay 86 Working pressure by rules 186 lb. End plates in steam space:

Material steel Thickness 3/32 Pitch of stays 16 1/2 x 13 3/4 How are stays secured S.N. Working pressure by rules 182.2 lb. Material of stays steel

Diameter at smallest part 2.38 Area supported by each stay 227 Working pressure by rules 81.4 lb. Material of Front plates at bottom steel

Thickness 1 1/2 Material of Lower back plate steel Thickness 25 Greatest pitch of stays 12 1/8 Working pressure of plate by rules 180.5 lb.

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates steel Thickness: Front 13/16 Back 13/16 Mean pitch of stays 10 3/8

Pitch across wide water spaces 14 1/4 Working pressures by rules 186.9 lb. Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 4 3/8 x 1 1/2 Length as per rule 24 1/4 Distance apart 8" Number and pitch of Stays in each one

Working pressure by rules 185 lb. 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 _____

DONKEY BOILER— No. *one* Description *(starboard side of Stockholm) Vertical 2 cross tubes*
 Made at *Stockholm* By whom made *Riley Bros.* When made *1904* Where fixed *in shore*
 Working pressure *100 lb* tested by hydraulic pressure to *200 lb* No. of Certificate *3141* Fire grate area *23.75 sq* Description of safety valves *direct spring*
 No. of safety valves *two* Area of each *4.91 sq* Pressure to which they are adjusted *100 lb*. If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *6-0* Length *7-6* Material of shell plates *steel* Thickness *15* Range of tensile strength *28-32* Descrip. of riveting long-seams *lap 5/8* Dia. of rivet holes *5/16* Whether punched or drilled *drilled* Pitch of rivets *3/4*
 Lap of plating *4 3/4* Per centage of strength of joint Rivets *48* Thickness of shell crown plates *9/16* Radius of do. *5 ft* No. of Stays to do. *seven*
 Dia. of stays. *1 7/8* Diameter of furnace Top *5-0* Bottom *5-6* Length of furnace *2-4* Thickness of furnace plates *9/16* Description of joint *Lap 5/8* Thickness of furnace crown plates *7/8* Stayed by *cross stays* Working pressure of shell by rules *115 lb*
 Working pressure of furnace by rules *104 lb*. Diameter of uptake *14* Thickness of uptake plates *1/16* Thickness of water tubes *3/8*

SPARE GEAR. State the articles supplied:— *Two each top end, bottom end, + main bearing bolts + nuts, one set coupling bolts + nuts, one set each feed + helix pump valves one screw propeller—*

The foregoing is a correct description,
 Manufacturer. **MAD COLE & POLLOCK, LTD.**
E. R. Pollock
 Managing Director.

Dates of Survey while building	During progress of work in shops - -	1903- Sep 3. 21. 30 Oct 16 Nov 3. 11. 19 25 Dec 1. 10. 18. 21 - 1904- Jan 15	Is the approved plan of main boiler forwarded herewith	Yes	
		During erection on board vessel - -		22. 29 Feb 5. 4. 9. 11. 19	Yes
				Total No. of s	20

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

The machinery of this vessel has been constructed under special survey, the material and workmanship sound and good, the Boilers and steam pipes tested by hydraulic pressure in accordance with the Rules. The machinery worked satisfactorily and the safety valves of the Main and Donkey Boilers have been adjusted to the working pressure and easing gear fitted.

*This vessel is eligible in our opinion to have the notation *LMC 2,04 in the Register Book*

It is submitted that this vessel is eligible for THE RECORD. **LMC 2,04**

Wm. S. 7.3.04
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Wm. S. & G. Williamson.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee..	£ 1 :	When applied for,
Special	£ 12 : 6 :	27. 3. 1904
Donkey Boiler Fee	£ :	When received,
Travelling Expenses (if any) £	:	2. 3. 1904

Committee's Minute

Assigned

MACHINERY CERTIFICATE
 WRITTEN. (6.3.04)



Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.