

REPORT ON MACHINERY.

Nwc. No. 52739
Sld No. 23212

Port of Sunderland

Received at London Office 1UES. APL 23 1904

No. in Survey held at Sunderland Date, first Survey 14th December Last Survey 27th March 1904

Reg. Book. 95 of the Steel Screw Steamer MARINA (Number of Visits 28)

Master F. Radina Built at Newcastle By whom built R. Stephenson & Co. Ltd. Tons { Gross 2853 Net 1816 When built 1904

Engines made at Sunderland By whom made Richardsons, Westgarth & Co. Ltd. when made 1904

Boilers made at Sunderland By whom made Richardsons, Westgarth & Co. Ltd. when made 1904

Registered Horse Power _____ Owners Nav Libera Triestina Port belonging to Trieste

Nom. Horse Power as per Section 28 262 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

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

Dia. of Cylinders 23-38-62 Length of Stroke 42 Revs. per minute 64 Dia. of Screw shaft 12.25 Material of screw shaft Iron

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 no

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 4-6

Dia. of Tunnel shaft 11.02 Dia. of Crank shaft journals 11.58 Dia. of Crank pin 12 Size of Crank webs 4 7/8 x 1 1/2 Dia. of thrust shaft under collars 13 Dia. of screw 16-0 Pitch of Screw 16-6 No. of Blades four State whether moveable no Total surface 82 sq ft

No. of Feed pumps two Diameter of ditto 3 1/2 Stroke 24 Can one be overhauled while the other is at work yes

No. of Bilge pumps two Diameter of ditto 3 1/2 Stroke 24 Can one be overhauled while the other is at work yes

No. of Donkey Engines two Duplex Sizes of Pumps 8x9x8 1/2 6x4x6 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room two 3 1/2" wings, one 3 1/2" Centre In Holds, &c. In all holds two 3" Tunnel Well one 2 1/4"

No. of Bilge Injections one sizes 5" Connected to condenser, or to circulating pump condenser Is a separate Donkey Suction fitted in Engine room & size yes 4"

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 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 28-2-07 of Stern Tube 23 1/2 Screw shaft and Propeller 20 1/2

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) Manufacturers of Steel J. Spencer & Sons Ltd.

Total Heating Surface of Boilers 4140 sq ft Is Forced Draft fitted no No. and Description of Boilers two, single ended, cyl. mult

Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test 25/2/04 No. of Certificate 2581

Can each boiler be worked separately yes Area of fire grate in each boiler 5 1/2 sq ft No. and Description of Safety Valves to each boiler two, direct spring Area of each valve 4.04 sq in 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 21" Mean dia. of boilers 15-0 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 & R.

long. seams DRS-TR Diameter of rivet holes in long. seams 1 9/32 Pitch of rivets 8" Lap of plates or width of butt straps 16 1/2"

Per centages of strength of longitudinal joint rivets 85.3 plate 84 Working pressure of shell by rules 162.5 lbs Size of manhole in shell end 18x12

Size of compensating ring flanged No. and Description of Furnaces in each boiler three, plain Material steel Outside diameter 43 1/2"

Length of plain part top 4-0 bottom _____ Thickness of plates crown 3/4 bottom 3/4 Description of longitudinal joint weld No. of strengthening rings one

Working pressure of furnace by the rules 162 lbs Combustion chamber plates: Material steel Thickness: Sides 1/8 Back 1/8 Top 1/8 Bottom 3/4

Pitch of stays to ditto: Sides 8 1/2 x 1 1/2 Back 11 x 1 1/4 Top 10 1/2 x 8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 160 lbs

Material of stays steel Diameter at smallest part 1 1/8 Area supported by each stay 98, 105 Working pressure by rules 164, 181 End plates in steam space:

Material steel Thickness 1 3/16 Pitch of stays 14 x 22 How are stays secured DN Working pressure by rules 163.4 lbs Material of stays steel

Diameter at smallest part 2.8 Area supported by each stay 3 1/4 Working pressure by rules 163.4 lbs Material of Front plates at bottom steel

Thickness 3/4 Material of Lower back plate steel Thickness 3/4 Greatest pitch of stays 13 x 8 1/2 Working pressure of plate by rules 160 lbs

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates steel Thickness: Front 3/4 Back 3/4 Mean pitch of stays 11 1/4

Pitch across wide water spaces 14 Working pressures by rules 206.4 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 x 1 1/2 Length as per rule 30 Distance apart 10 1/2 Number and pitch of stays in each two 8 1/2

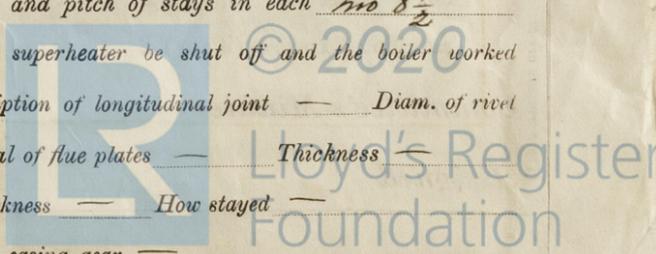
Working pressure by rules 162 lbs Superheater or Steam chest; how connected to boiler _____ Can the superheater be shut off and the boiler worked separately _____

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 _____

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?



VERTICAL DONKEY BOILER— ~~Manufacturers of Steel~~ Please see attached sheet—

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:— One set of coupling bolts & nuts, two each top end, bottom end & main bearing bolts & nuts, one set each feed & bilge pump valves, two safety valve springs & assorted bolts & iron — one propeller & propeller shaft.

The foregoing is a correct description,

RICHARDSONS, WESTGARTH & CO., LTD

Manufacturer.

Frederic H. Russell
ASSISTANT MANAGER.

Dates of Survey while building	During progress of work in shops - -	1906: Dec 14, 15, 16, 17, 19, 22, 24, 25, 31, Feb 5, 9, 12, 13, 18, 21, 23, 25, 27, Mar 5, 15, 18, 20, 23, 25	Total No. of visits 28 35	Is the approved plan of main boiler forwarded herewith <u>yes</u>
	During erection on board vessel - -	26, 27 = 28		
		Nov: Feb 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31		

Dates of Examination of principal parts—Cylinders	26/11, 18/12, 28/12, 7/1/11	Slides	27/2	Covers	19/1, 22/1, 5/2	Pistons	5/2	Rods	24/1		
Connecting rods	14/22/8/2	Crank shaft	8/2, 4/2	Thrust shaft	5/2, 13/2	Tunnel shafts	4/2, 21/2, 22/2, 23/2	Screw shaft	18/23/27/28/107	Propeller	10-25-07
Stern tube	23/2	Steam pipes tested	26/2	Engine and boiler seatings	24/2 - 18-2-07	Engines holding down bolts	24/2				
Completion of pumping arrangements	8-4-07	Boilers fixed	24/2	Engines tried under steam	27/2						
Main boiler safety valves adjusted	27/2	Thickness of adjusting washers	3/8, 3/8, 3/8, 3/8								
Material of Crank shaft	steel	Identification Mark on Do.	1378 AF	Material of Thrust shaft	iron	Identification Mark on Do.	397D AB				
Material of Tunnel shafts	iron	Identification Marks on Do.	396D AB	Material of Screw shafts	iron	Identification Marks on Do.	402D AB, 403D AB				
Material of Steam Pipes	Copper solid drawn 4 1/2 bore New 11/2	Test pressure	400 lbs								

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

The machinery of the vessel has been constructed under special survey, the material & workmanship sound & good the boiler and steam pipes have been tested by hydraulic pressure in accordance with the Rules, the machinery worked satisfactorily at the morning & the safety valves have been adjusted under steam to their working pressure. The mach^y is eligible in our opinion for classification & the record + I.M.C. 4-07

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 4.07.

23/4/07

J.S.
23.4.07

The amount of Entry Fee	£ 2	When applied for	6.4.1907
Special	£ 33	When received	27/5/07
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		

John H Heck
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI, 26 APR 1907

Assigned

Thome 407

MACHINERY CERTIFICATE WRITTEN.



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

Sunderland