

## REPORT ON MACHINERY

No. 15253

Received at London Office

MON. - 5 JUN. 1916

Date of writing Report 1<sup>st</sup> June 1916 When handed in at Local Office 3<sup>rd</sup> June 1916 Port of West HartlepoolNo. in Survey held at W. Hartlepool Date, First Survey 7<sup>th</sup> Dec 15 Last Survey 23<sup>rd</sup> May 1916  
Reg. Book. on the Steel Screw Steamer "Moura" (Number of Visits 59)

Safety

7-16

0"

Master Built at By whom built Tons { Gross  
Net  
When built

Engines made at W. Hartlepool By whom made Central Marine Engine Works when made 1916

Boilers made at W. Hartlepool By whom made Central Marine Engine Works when made 1916

Registered Horse Power Owners Port belonging to

Nom. Horse Power as per Section 28 268 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

ENGINES, &amp;c.—Description of Engines Triple Expansion No. of Cylinders three (3) No. of Cranks three (3)

Dia. of Cylinders 23" 36½" 62" Length of Stroke 42" Revs. per minute Dia. of Screw shaft as per rule 12.75" Material of Ingot Steel  
as fitted 13" screw shaft

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 Yes If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 51"

Dia. of Tunnel shaft as per rule 11.44" Dia. of Crank shaft journals as per rule 11.98" Dia. of Crank pin 12½" Size of Crank webs 7½" x 17½" Dia. of thrust shaft under

collars 12½" Dia. of screw 15-6" Pitch of Screw 16-3" No. of Blades 4 State whether moveable No Total surface 78 sq. ft.

No. of Feed pumps two (2) Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work Yes

No. of Bilge pumps two (2) Diameter of ditto 3½" Stroke 30" Can one be overhauled while the other is at work Yes

No. of Donkey Engines two (2) Sizes of Pumps 4" pump, 6" stroke } duplex No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room In Holds, &amp;c.

No. of Bilge Injections One sizes 6½" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room &amp; size

Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible

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

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Discharge Pipes above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

Dates of examination of completion of fitting of Sea Connections of Stern Tube Screw shaft and Propeller

Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &amp;c.—(Letter for record S) Manufacturers of Steel John Spencer &amp; Sons, Ltd.

Total Heating Surface of Boilers 4090 sq. ft. Is Forced Draft fitted No. No. and Description of Boilers two (2) Single-ended

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 2/5/16 No. of Certificate 3427

Can each boiler be worked separately Yes Area of fire grate in each boiler 52 sq. ft. No. and Description of Safety Valves to

each boiler two (2), Spring Area of each valve 8.295 sq. ins. Pressure to which they are adjusted Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers 15-0" Length 10-6" Material of shell plates Steel

Thickness ¼" Range of tensile strength 27/30 tons Are the shell plates welded or flanged both Descrip. of riveting: cir. seams

long. seams 3/16" dble straps Diameter of rivet holes in long. seams 1½" Pitch of rivets 8 13/16" Lap of plates or width of butt straps 19½"

Per centages of strength of longitudinal joint rivets 91. plate 85.1 Working pressure of shell by rules 180.4 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring 32" x 28" x 1½" No. and Description of Furnaces in each boiler three (3), Morrison's Material Steel Outside diameter 46½"

Length of plain part top 8" Thickness of plates crown 9/16" Description of longitudinal joint welded No. of strengthening rings Susp.

Working pressure of furnace by the rules 184 lbs. Combustion chamber plates: Material Steel Thickness: Sides 10" Back 10" Top 10" Bottom 13"

Pitch of stays to ditto: Sides 9" x 8½" Back 9½" x 8" Top 8½" x 8½" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181 lbs.

Material of stays Steel Diameter at smallest part 1.508" Area supported by each stay 9" x 8½" Working pressure by rules 192 lbs. End plates in steam space:

Material Steel Thickness 1½" Pitch of stays 21½" x 19½" How are stays secured dble nuts Working pressure by rules 183 lbs. Material of stays Steel

Diameter at smallest part 3.161" Area supported by each stay 21½" x 19½" Working pressure by rules 194 lbs. Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1½" Greatest pitch of stays 16½" x 7½" Working pressure of plate by rules 189 lbs.

Diameter of tubes 3½" Pitch of tubes 4½" Material of tube plates Steel Thickness: Front 1" Back 1½" Mean pitch of stays 9"

Pitch across wide water spaces 14½" Working pressures by rules 189 lbs. Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 8½" x 1½" Length as per rule 28 5/8" Distance apart 8½" Number and pitch of stays in each two (2), 8 3/4"

Working pressure by rules 184 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

W1630-0029

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## IS A DONKEY BOILER FITTED?

*If so, is a report now forwarded?*

**SPARE GEAR.** State the articles supplied:— 2 top and 2 bottom and bolts & nuts for connecting rod; 2 main bearing bolts & nuts, one set of coupling bolts & nuts, 2 feed pump valves, 2 bilge pump valves, one set of H.P. piston springs, one solid propeller, & assorted bolts & nuts & iron bars.

To check on board.

*The foregoing is a correct description,*

FOR THE CENTRAL MARINE ENGINE WORKS.

(W. GRAY & Co.,

Co., Ltd.  
G. Hogarth  
Chief Draughtsman

Manufacturer

Dates of Survey while building	During progress of work in shops - -	1915. Dec 7 & 9. 1916. Jan 10. 11. 13. 14. 17. 24. 25. 26. 27. 31. Feb 1. 2. 3. 4. 8.
	During erection on board vessel - -	9. 10. 14. 15. 23. 24. 25. 29. Mar 1. 2. 10. 13. 14. 15. 17. 22. 23. 24. 27. 31. April 11. 12. 13. 14. 17. 19. 27. 28. May 1. 2. 3. 4. 6. 8.
	Total No. of visits	59.
	Is the approved plan of main boiler forwarded herewith	Yes. ✓

Is the approved plan of main boiler forwarded herewith Yes. ✓

“ “ “ donkey “ “ ✓

Dates of Examination of principal parts—Cylinders 18/5/16 Slides 18/5/16 Covers 18/5/16 <sup>oil pump</sup> Pistons 18/5/16 Rods 2/5/16

Connecting rods 28/4/16 Crank shaft 15/5/16 Thrust shaft 15/5/16 Tunnel shafts 9/5/16 Screw shaft 25/2/16 Propeller 2/3/16

Stern tube 2/3/16 Steam pipes tested 18/5/16 Engine and boiler seatings Engines holding down bolts

Completion of pumping arrangements	Boilers fixed	Engines tried under steam
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<i>Main boiler safety valves adjusted</i>	<i>Thickness of adjusting washers</i>
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Material of Crank shaft *hot steel* Identification Mark on Do. 5717      Material of Thrust shaft *hot steel* Identification Mark on Do. 5717

Material of Tunnel shafts hot Steel Identification Marks on Do. 5717      Material of Screw shafts hot Steel Identification Marks on Do. 5717

Material of Steam Pipes Steel, lap-welded ✓ Test pressure 600 lbs. ✓

Is an installation fitted for burning oil fuel No ✓ Is the flash point of the oil to be used over 150°F. ✓

Have the requirements of Section 49 of the Rules been complied with. ✓

Is this machinery duplicate of a previous case Yes. If so, state name of vessel S.S. "Mar Mediterraneo," & "Mar de Norte"

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

Evaporator coils tested to 400 lbs & body to 50 lbs. water pressure

The Engines & Boilers have been constructed under special survey & in accordance with the requirements of the Society's Rules. The Machinery is intended for the new steamer "Moura" & is being shipped to Bilbao to be fitted on board her.

The amount of Entry Fee ... £ 2 : - -:

~~2/3~~ Special ... £ 22 : 6 -:

3	do due Bulbas	16	2	—
	Donkey Boiler Fee			

Travelling Expenses (if any) £ . . . . .

When applied for,

26/ 19

When received, 63

12-6-16

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

Committee's Minute

TUE.-5 SEP 1916

*Assigned*

Se minute Booke 4790



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