

REPORT ON MACHINERY.

No. 22367

Port of Sunderland

WED. 9 AUG 1905

Received at London Office

No. in Survey held at Sunderland Date, first Survey 16th January Last Survey 29th July 1905
 Reg. Book. on the Twin screw steamer "Madrid" (Number of Visits 56)
 Master Pedro Built at Sunderland By whom built Lang & Sons L^{td} Tons { Gross 1725.86
 Engines made at Sunderland By whom made North Eastern Marine Engineering L^{td} when made 1905 Net 1096.76
 Boilers made at Sunderland By whom made North Eastern Marine Engineering L^{td} when made 1905 When built 1905
 Registered Horse Power _____ Owners Navegacion a Vapor Nicolas Port belonging to Buenos Aires
 Nom. Horse Power as per Section 28 234 Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin screw Inverted triple expansion No. of Cylinders 3 to each set No. of Cranks 3 to each set
 Dia. of Cylinders 15 1/2", 25", 41" Length of Stroke 27" Revs. per minute 113 Dia. of Screw shaft 8 3/4" Material of screw shaft Iron
 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 fitted 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' 0"
 Dia. of Tunnel shaft 7.57 Dia. of Crank shaft journals 7.95 Dia. of Crank pin 8 1/2" Size of Crank webs 13 1/2" x 5 1/2" Dia. of thrust shaft under
 collars 8 1/2" Dia. of screw 9' 0" Pitch of screw 13' 6" No. of blades 4 State whether moveable no Total surface 32 sq ft
 No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 16 1/2" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 16 1/2" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 3 Sizes of Pumps Ballast 6" x 8 1/2" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 of 2 1/2" Feed 6" x 4" x 6" In Holds, &c. 1 of 2 1/2" in No 1 hold, 2 of 2 1/2" in
No 2 hold, 1 of 2 1/2" in hold & tunnel well
 No. of bilge injections 2 sizes 4" Connected to condenser, or to circulating pump no 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 —
 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
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock new Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from top platform

BOILERS, &c.— (Letter for record —) Total Heating Surface of Boilers 4224 sq ft Is forced draft fitted no
 No. and Description of Boilers 2 single ended cylindrical built Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs
 Date of test 13.5.05 Can each boiler be worked separately Yes Area of fire grate in each boiler 58 sq ft No. and Description of safety valves to
 each boiler 2 spring Area of each valve 5.94 sq in Pressure to which they are adjusted 185 lbs for 180 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 15" Mean dia. of boilers 14' 3 1/4" Length 11' 6" Material of shell plates steel
 Thickness 1 1/2" Range of tensile strength 29/32 Are they welded or flanged no Descrip. of riveting: cir. seams d. or lap long. seams L. or double
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 18 3/8" butted
 Per centages of strength of longitudinal joint 87.5 Working pressure of shell by rules 180.9 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 7' x 1 1/2" No. and Description of Furnaces in each boiler 3 Dightons Material steel Outside diameter 43 1/2"
 Length of plain part top Thickness of plates orowin 17/32 Description of longitudinal joint weld No. of strengthening rings —
 Working pressure of furnace by the rules 188.1 lbs Combustion chamber plates: Material steel Thickness: Sides 25/32 Back 25/32 Top 25/32 Bottom 7/8"
 Pitch of stays to ditto: Sides 12 3/4" x 9" Back 11" x 10 1/2" Top 12 3/4" x 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182.4 lbs
 Material of stays steel Diameter at smallest part 2.43 Area supported by each stay 115.6 sq in Working pressure by rules 189.2 lbs End plates in steam space:
 Material steel Thickness 1 1/5" Pitch of stays 24" x 20" How are stays secured d. or w. Working pressure by rules 182 lbs Material of stays steel
 Diameter at smallest part 9.82 Area supported by each stay 540 sq in Working pressure by rules 181.8 lbs Material of Front plates at bottom steel
 Thickness 13/16" Material of Lower back plate steel Thickness 29/32 Greatest pitch of stays 14 1/4" x 10 1/2" Working pressure of plate by rules 181.1 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 7/16" Material of tube plates steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 8 7/8" x 9"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 184.9 lbs Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 8 1/2" x 2 1/2" Length as per rule 30 1/2" Distance apart 12 3/8" Number and pitch of Stays in each 2-9"
 Working pressure by rules 187.8 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 —

DONKEY BOILER— No. *one* Description *Cylindrical Mult^l, 2 plain furnaces,*
 Made at *Stockton* By whom made *Riley Bros.* When made *1905* Where fixed *In stockhold*
 Working pressure *180 lb* tested by hydraulic pressure to *360 lb* No. of Certificate *3419* Fire grate area *22.2^{ft}* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *7.07^{ft}* Pressure to which they are adjusted *185 lb* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *9.3"* Length *9.0"* Material of shell plates *steel* Thickness *13/16"* Range of tensile strength *27/32* Descrip. of riveting long. seams *double buttchep* Dia. of rivet holes *15/16"* Whether punched or drilled *drilled* Pitch of rivets *1 1/2" x 7"*
 Lap of plating *1 1/2"* Per centage of strength of joint *Rivets 90.4* Thickness of *end* plates *1 1/32"* Radius of do. *✓* No. of Stays to do. *4*
 Dia. of stays. *2 3/4"* riveted washers Diameter of furnace *Top 3.2" Bottom 7.9"* Length of furnace *top 5.9 1/2"* Thickness of furnace plates *23/32"* Description of joint *weld* Thickness of furnace *erosion* plates *5 - 9/16"* Stayed by *screwed stays* Working pressure of shell by rules *180-2 lb*
 Working pressure of furnace by rules *187 lb* Diameter of *uptake* tubes *3 1/4"* Thickness of *uptake* plates *F- 1 1/32" B- 1/16"* Thickness of *water* tubes *5/16"*

SPARE GEAR. State the articles supplied:— *2 Propeller shafts, 2 Propellers, 1/2" Crank shaft, 4 Bottom end, 4 top end, 4 Main bearing + 4 sets coupling bolts, 2 Feed pump Valves + 2 Bilge pump Valves, Bolts + nuts assorted + iron of size*

NORTH EASTERN MARINE ENGINEERING CO. LTD.

The foregoing is a correct description,
 NORTH EASTERN MARINE ENGINEERING CO. LTD.
 Manufacturer.
Walter Beattie

Dates of Survey while building
 During progress of work in shops - - - 1905:— Jan: 31, Feb: 3, 6, 17, 21, 24, 27, 28, Mch: 1, 6, 7, 15, 17, 20, 22, 23,
 During erection on board vessel - - - 28, 30, 31, Apr: 7, 11, 13, 14, 17, 19, 27, May: 7, 2, 5, 8, 10, 11, 13, 15, 17, 18, 22, 23, 26, 30, June:
 Total No. of visits *56* 5, 9, 15, 16, 19, 21, 22, 24, 27, July, 11, Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c. *The Machinery for 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, + the safety Valves adjusted as above noted, the main steam pipes have been tested to twice the working pressure + found satisfactory*

I beg to recommend that this vessel in my opinion, is eligible to have the record *L.M.C. 7.05* in the Register Book

It is submitted that this vessel is eligible for THE RECORD *L.M.C. 7.05 ELEC LIGHT.*

The amount of Entry Fee. £ 2 : : When applied for,
 Special .. £ 31 : 14 : } 8.8.19.05
 Donkey Boiler Fee .. £ : : }
 Travelling Expenses (if any) £ : : } 10.8.05

K.W. Coomber.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 11 AUG 1905**
 Assigned *+ L.M.C. 7.05 elec light*
 MACHINERY CERTIFICATE WRITTEN.



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Sunderland.

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