

Rpt. 4.

## REPORT ON MACHINERY.

Port of NEWCASTLE ON TYNE.

Received at London Office

JAN 30 DEC 1909

No. in Survey held at *Newcastle on Tyne*  
Reg. Book. on the *s/s "Cacique"*Date, first Survey *26<sup>th</sup> July 1909* Last Survey *2<sup>nd</sup> February 1910*  
(Number of Visits *547*)Master Built at *Sunderland* By whom built *Wm. Short Bros.* Gross *4890* Tons  
Engines made at *Newcastle on Tyne* By whom made *North Eastern Marine Engineering Co. Ltd.* Net *3013* Tons  
Boilers made at *Sitto* By whom made *Sitto* When built *1909*  
Registered Horse Power Owners *Grace Bros.* when made *1909*  
Nom. Horse Power as per Section 28 *480* Is Refrigerating Machinery fitted for cargo purposes *No* Port belonging to *London*  
Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Invented quadruple expansion* No. of Cylinders *4* No. of Cranks *4*  
Dia. of Cylinders *24", 34", 49", 71"* Length of Stroke *48"* Revs. per minute *68* Dia. of Screw shaft *14.5"* Material of *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 *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 *5' 6"*  
Dia. of Tunnel shaft *13.0"* Dia. of Crank shaft journals *13.75"* Dia. of Crank pin *14.5"* Size of Crank webs *26" x 9"* Dia. of thrust shaft under  
collars *14.5"* Dia. of screw *17.6"* Pitch of Screw *18.0"* No. of Blades *4* State whether moveable *No* Total surface *984*  
No. of Feed pumps *2* Diameter of ditto *9"* Stroke *21"* Can one be overhauled while the other is at work *Yes*  
No. of Bilge pumps *2* Diameter of ditto *4.5"* Stroke *27"* Can one be overhauled while the other is at work *Yes*  
No. of Donkey Engines *2* Sizes of Pumps *B-7.5" x 10"* No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room *4 of 3.5" cone of 3.5" in tunnel well* In Holds, &c. *2 in each 3.5" dia.*

No. of Bilge Injections *1* sizes *9"* Connected to condenser, or to circulating pump *Yes* Is a separate Donkey Suction fitted in Engine room & size *Yes - 3.5"*  
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 *below*  
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 *oil* How are they protected *Yes*  
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 *10-11-09* of Stern Tube *10-11-09* Screw shaft and Propeller *27.11.09*  
Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *top platforms*

BOILERS, &c.—(Letter for record *S*) Manufacturers of Steel *J. Spencer & Sons*  
Total Heating Surface of Boilers *6480* Is Forced Draft fitted *Yes* No. and Description of Boilers *3 Cylindrical Multitube*  
Working Pressure *220 lbs* Tested by hydraulic pressure to *440 lbs* Date of test *12-11-09* No. of Certificate *7909*  
Can each boiler be worked separately *Yes* Area of fire grate in each boiler *50.6* No. and Description of Safety Valves to  
each boiler *2 spring* Area of each valve *9.621* Pressure to which they are adjusted *225 lbs* Are they fitted with easing gear *Yes*  
Smallest distance between boilers or uptakes and bunkers or woodwork *27"* Mean dia. of boilers *14.75"* Length *12.35"* Material of shell plates *steel*  
Thickness *1.19"* Range of tensile strength *28.5/32"* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *double lap*  
long. seams *cr. d. 2.5"* Diameter of rivet holes in long. seams *1.19"* Pitch of rivets *10"* Lap of plates or width of butt straps *2.276"*  
Per centages of strength of longitudinal joint *93.05%* Working pressure of shell by rules *266 lbs* Size of manhole in shell *16 x 12"*  
Size of compensating ring *flanged* No. and Description of Furnaces in each boiler *3 Morrison* Material *steel* Outside diameter *3.85"*  
Length of plain part *top* Thickness of plates *bottom* *11/16"* Description of longitudinal joint *weld* No. of strengthening rings *Yes*  
Working pressure of furnace by the rules *254 lbs* Combustion chamber plates: Material *steel* Thickness: Sides *3/4"* Back *3/4"* Top *3/4"* Bottom *1/2"*  
Pitch of stays to ditto: Sides *8.5" x 9"* Back *8.5" x 9"* Top *8.5" x 9"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *261 lbs*  
Material of stays *steel* Diameter at smallest part *2.32"* Area supported by each stay *74"* Working pressure by rules *285 lbs* End plates in steam space:  
Material *steel* Thickness *1.19"* Pitch of stays *19.5" x 19.5"* How are stays secured *draw* Working pressure by rules *241 lbs* Material of stays *steel*  
Diameter at smallest part *9.824"* Area supported by each stay *369"* Working pressure by rules *278 lbs* Material of Front plates at bottom *steel*  
Thickness *1.19"* Material of Lower back plate *steel* Thickness *1.19"* Greatest pitch of stays *14.5"* Working pressure of plate by rules *261 lbs*  
Diameter of tubes *2.5"* Pitch of tubes *4" x 4"* Material of tube plates *steel* Thickness: Front *1.19"* Back *7/8"* Mean pitch of stays *8"*  
Pitch across wide water spaces *14.5"* Working pressures by rules *360 + 220 lbs* Girders to Chamber tops: Material *steel* Depth and  
thickness of girder at centre *10.5" x 2.5"* Length as per rule *38"* Distance apart *9"* Number and pitch of stays in each *3 - 8.5"*  
Working pressure by rules *242 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*

If not, state whether, and when, one will be sent?

Is a Report also sent on the Hull of the Ship?

3024-1.

3598-0223



VERTICAL DONKEY BOILER— *Manufacturers of Steel*

No.                      Description Attached

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 Each both ends for top & bottom ends.  
4 main bearing & 12 Coupling bolts & nuts. Eccentric & rod, valve spindle, 3 bottom end bearing  
valves for all pumps, bronze impeller for centrifugal pump, Gills & condenser tubes & sundries;  
bolts, nuts & iron assorted &c.

*The foregoing is a correct description,*  
NORTH EASTERN MARINE ENGINEERING Co., LTD.

*Manufacturer.*

1909	
Dates of Survey while building	<div> <div> During progress of work in shops - - </div> <div> During erection on board vessel - - </div> <div> Total No. of visits </div> </div> <div> <div>Secretary,</div> <div> Jul. 26. Aug. 19. 27. 30. 31. 24. 1. 7. 10. 11. 13. 22. 28. Oct. 1. 4. 6. 11. 12. 14. 15. 16. 19. 20. 21. 25. Nov. 1. 2. </div> <div> 3. 4. 5. 8. 9. 10. 11. 12. 13. 17. 19. 23. 25. 26. 27. Dec. 1. 3. 6. 7. 9. 10. 12. 14. 15. 20. 21. 22. </div> <div> 54 58 </div> </div>
Is the approved plan of main boiler forwarded herewith <u>Yes</u>	

Dates of Examination of principal parts—Cylinders 11.9.09 Slides 1.11.09 Covers 6.10.09 Pistons 8.11.09 Rods 11.11.09  
Connecting rods 19.8.09 Crank shaft 26.10.09 Thrust shaft 17.9.09 Tunnel shafts 12.10.09 Screw shaft 20.10.09 Propeller 12.11.09  
Stern tube 2.11.09 Steam pipes tested 5.11.09 Engine and boiler seatings 8.11.09 Engines holding down bolts 7.12.09  
Completion of pumping arrangements 22.12.09 Boilers fixed 7.12.09 Engines tried under steam 22.12.09  
Main boiler safety valves adjusted 22.12.09 Thickness of adjusting washers P.P.  $\frac{21}{32}$ , P.S.  $\frac{9}{16}$  Fuel, C.P.  $\frac{5}{8}$ , C.S.  $\frac{5}{8}$ , S.P.  $\frac{1}{2}$  &  $\frac{3}{4}$ , S.S.  $\frac{9}{16}$   
Material of Crank shaft Steel Identification Mark on Do. A 2 K 27 Material of Thrust shaft Steel Identification Mark on Do. A 2 K 17.9.09  
Material of Tunnel shafts Steel Identification Marks on Do. A 2 K 12.10.09 Material of Screw shafts Working iron Identification Marks on Do. A 2 K 20.10.09  
Material of Steam Pipes Iron Test pressure 660 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 & worked satisfactorily.

We beg to recommend that this vessel is  
eligible in our opinion to have the record ✠ L.M.C. 2.10.  
in the Register Book.

Date of build of Machinery 1910

It is submitted that  
this vessel is eligible for  
THE RECORD. #LMC.210

The amount of Entry Fee..	£ 3 : 0 : 0	When applied for,
Special .. .. .	£ 44 : 0 : 0	29 DEC 1909
Donkey Boiler Fee .. .	£ : : }	When received,
Travelling Expenses (if any) £	: : }	For Lx. 15/11/10

*K. W. Coomber & A. M. Mearns, E. J. Stoddard*  
Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI, 18 FEB 1910

*Assigned*

MACHINERY CERTIFICATE  
WRITER:

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Foundation