

## REPORT ON MACHINERY.

Port of *Newcastle-on-Tyne*

MUN. 22 DEC 1902

No. in Survey held at *Newcastle-on-Tyne* Date, first Survey *Apr 9* Last Survey *Dec 10<sup>th</sup>* 1902  
 Reg. Book. *23* Suppon the *S.S. "Grigua"* (Number of Visits *29*)  
 Master *J.W. Anderson* Built at *Newcastle* By whom built *Armstrong Whitworth & Co* Tons { Gross *3345*  
 Engines made at *Newcastle* By whom made *North Eastern Mar. Eng. Co* when made *1902* Net *2114*  
 Boilers made at *Newcastle* By whom made *North Eastern Mar. Eng. Co* when made *1902*  
 Registered Horse Power *387* Owners *Bucknall Bros.* Port belonging to *London*  
 Nom. Horse Power as per Section 28 *387* Is Refrigerating Machinery fitted *no* Is Electric Light fitted *yes*

ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*  
 Dia. of Cylinders *25" 45" 68"* Length of Stroke *48* Revs. per minute *70* Dia. of Screw shaft *13.75* as per rule *13.75* as fitted *14.5* Lgth. of stern bush *5.4*  
 Dia. of Tunnel shaft *13"* as per rule *13"* Dia. of Crank shaft journals *13.35* as per rule *13.35* as fitted *13.4* Dia. of Crank pin *13.4* Size of Crank webs *26.5* Dia. of thrust shaft under collars *14"* Dia. of screw *16-0* Pitch of screw *17-6 to 19-0* No. of blades *4* State whether moveable *yes* Total surface *90.85*  
 No. of Feed pumps *Wiers* Diameter of ditto *7.95* Stroke *✓* Can one be overhauled while the other is at work *✓*  
 No. of Bilge pumps *2* Diameter of ditto *4.5* Stroke *26"* Can one be overhauled while the other is at work *yes*  
 No. of Donkey Engines *3* Sizes of Pumps *8x9x10, 6x5x6, 7x4x10* and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *From 3.5"* In Holds, &c. *In Nos. 1, 2, 13 holds, two 3.5" In*  
*W4, one in hold with 3.5", one in hold with 3"*  
 No. of bilge injections *1* sizes *6* Connected to condenser or to circulating pump *yes* Is a separate donkey suction fitted in Engine room & size *yes*  
 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 *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 *27/11/02* Is the screw shaft tunnel watertight *yes*  
 Is it fitted with a watertight door *yes* worked from *upper Platform*

BOILERS, &c.—(Letter for record *✓*) Total Heating Surface of Boilers *52765* Is forced draft fitted *yes*  
 No. and Description of Boilers *Three cyl. single ended* Working Pressure *150 lbs* Tested by hydraulic pressure to *360 lbs*  
 Date of test *3/10/02* Can each boiler be worked separately *yes* Area of fire grate in each boiler *360* No. and Description of safety valves to each boiler *Two spring valves* Area of each valve *7.07* Pressure to which they are adjusted *185 lbs* Are they fitted with easing gear *yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *4 in 1/2* Mean dia. of boilers *12.97* Length *11-6* Material of shell plates *S*  
 Thickness *1.76* Range of tensile strength *24-32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *Lap 1.5* long. seams *1.5 to 2 in*  
 Diameter of rivet holes in long. seams *1.7* Pitch of rivets *1.5* Lap of plates or width of butt straps *15.3*  
 Per centages of strength of longitudinal joint *82.6* Working pressure of shell by rules *181* Size of manhole in shell *16x12*  
 Size of compensating ring *flanged in* No. and Description of Furnaces in each boiler *3 Morrison* Material *S* Outside diameter *39"*  
 Length of plain part *top 3.2* Thickness of plates *bottom 3.2* Description of longitudinal joint *without* No. of strengthening rings *✓*  
 Working pressure of furnace by the rules *191* Combustion chamber plates: Material *S* Thickness: Sides *5/8* Back *1/6* Top *5/8* Bottom *1"*  
 Pitch of stays to ditto: Sides *9x8* Back *9x10* Top *9x8* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *186* End plates in steam space:  
 Material of stays *2 in* Diameter at smallest part *1.2* Area supported by each stay *90"* Working pressure by rules *184* Material of stays *S*  
 Material *S* Thickness *1.4* Pitch of stays *2.19* How are stays secured *2 in 1/2* Working pressure by rules *181* Material of Front plates at bottom *S*  
 Diameter at smallest part *7.24* Area supported by each stay *399"* Working pressure of plate by rules *183*  
 Thickness *3/8* Material of Lower back plate *S* Thickness *3.5* Greatest pitch of stays *14.5* Working pressure of plate by rules *183*  
 Diameter of tubes *2.5* Pitch of tubes *3.2x3.4* Material of tube plates *S* Thickness: Front *7/8* Back *3/4* Mean pitch of stays *9.5*  
 Pitch across wide water spaces *14.5* Working pressures by rules *206* Girders to Chamber tops: Material *S* Depth and thickness of girder at centre *9.34x1.4* Length as per rule *36* Distance apart *9* Number and pitch of Stays in each *3, 8"*  
 Working pressure by rules *191* 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—

Description

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of safety valves \_\_\_\_\_  
 No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ 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 \_\_\_\_\_ 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 \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *One propeller shaft, two top end + two bottom end connecting rod bolts + nuts, two main bearing bolts, one set coupling bolts, one set fuel + bilge pump valves, assorted bolts + nuts, Iron of various sizes.*

The foregoing is a correct description,

Manufacturer.

Dates  
of Survey  
while  
building

During progress of  
work in shops—  
During erection on  
board vessel —  
Total No. of visits

*1900. April 9. 30. May 22. June 5. July 3. 18. 24. 25. 29. Aug. 15. 18. 21. 25. Sep. 2. 9. 12. 15. 17. 22. 26.*  
*Oct. 2. 12. 17. 21. 24. 28. Nov. 6. 27. Dec. 10.*  
*29.*

Is the approved plan of main boiler forwarded herewith *no*

" " " donkey " " " ✓

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

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 *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 ✓

*The Machinery of this vessel has been constructed under special survey, the materials and workmanship are sound and good and under the vessel eligible in my opinion to have record of + LMC 12.02*

It is submitted, that  
this vessel is eligible for  
THE RECORD + LMC 12.02. FD. Elec. light

CMB.  
22.12.02

*J.S.*  
22.12.02

The amount of Entry Fee. £ *3* : : : When applied for, *19 DEC 1902*  
 Special . . . . £ *39* : : : *19*  
 Donkey Boiler Fee . . . . £ : : : When received, *29.12.02*  
 Travelling Expenses (if any) £ : : : *24/12/02*

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

Committee's Minute

TUES. 23 DEC 1902

Assigned

+ LMC 12.02 7D

MACHINERY CERTIFICATE  
WRITTEN



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Foundation