

# REPORT ON MACHINERY.

Port of Newcastle-on-Tyne

Received at London Office 19

No. in Survey held at Newcastle Date, first Survey 8th May 01 Last Survey 23rd Jan 1902  
 Reg. Book. 5/5 'Tigris' (Number of Visits 23)  
 Master Lee Built at Newcastle By whom built Armstrong Whitworth & Co. When built 1902  
 Engines made at Newcastle By whom made North Eastern Marine Eng. Co. when made 1902  
 Boilers made at Newcastle By whom made North Eastern Marine Eng. Co. when made 1902  
 Registered Horse Power \_\_\_\_\_ Owners Bucknall Bros. Port belonging to London  
 Nom. Horse Power as per Section 28 279 Is Refrigerating Machinery fitted no Is Electric Light fitted yes

Tons { Gross 2805  
 Net 1792

ENGINES, &c.—Description of Engines Trip No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 22 1/2" 36 1/2" 61" Length of Stroke 42" Revs. per minute 70 Dia. of Screw shaft 13" Lgth. of stern bush 4'-9"  
 Dia. of Tunnel shaft 10 1/2" Dia. of Crank shaft journals 11 7/8" Dia. of Crank pin 12" Size of Crank webs 23 1/2 x 7 1/2" Dia. of thrust shaft under collars 12" Dia. of screw 15-6" Pitch of screw 15-6" No. of blades 4 State whether moceable yes Total surface 74 5/8"  
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 22" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 3 3/4" Stroke 22" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 3 Sizes of Pumps 6+4+6, 6+5 1/2+6, 9+10+9 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Four 3" + one 3 1/2" In Holds, &c. Two in each hold 3" run in  
 No. of bilge injections 1 sizes 6" Connected to condenser to circulating pump yes Is a separate donkey suction fitted in Engine room & size yes 3 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 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock 22/1/02 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 3810 5/8 Is forced draft fitted yes  
 No. and Description of Boilers 3 Single Ended Mult. Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs  
 Date of test 25/11/01 Can each boiler be worked separately yes Area of fire grate in each boiler 235 1/2 No. and Description of safety valves to each boiler Two Spring. Area of each valve 4.9 1/2 Pressure to which they are adjusted 163 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork Way of Bricks Mean dia. of boilers 11-4 1/2" Length 11-0" Material of shell plates S  
 Thickness 7/8" Range of tensile strength 29-32 Are they welded or flanged no Descrip. of riveting: cir. seams Lap joints long. seams A. butt. A. riv.  
 Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 6 1/4" lap joints width of butt straps 11 7/8"  
 Per centages of strength of longitudinal joint 81 Working pressure of shell by rules 163 Size of manhole in End 16x12  
82 163 16x12  
Flanged in No. and Description of Furnaces in each boiler 2 Plain Material S Outside diameter 41"  
 Length of plain part 6-9" Thickness of plates 3 2/3 Description of longitudinal joint Welded No. of strengthening rings ✓  
6-6" 3 2/3 Welded ✓  
 Working pressure of furnace by the rules 164 Combustion chamber plates: Material S Thickness: Sides 1/8 Back 1/8 Top 1/8 Bottom 15/16  
 Pitch of stays to ditto: Sides 10+9 1/2" Back 10+9 1/2" Top 10+9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 172  
 Material of stays Iron Diameter at smallest part 1 5/8" Area supported by each stay 97.5 1/2 Working pressure by rules 160 End plates in steam space:  
 Material S Thickness 1 3/8" Pitch of stays 24+18 3/4" How are stays secured A. n. & W. Working pressure by rules 161 Material of stays S  
 Diameter at smallest part 3 1/8" Area supported by each stay 450 1/2 Working pressure by rules 167 Material of Front plates at bottom S  
 Thickness 7/8" Material of Lower back plate S Thickness 3/4" Greatest pitch of stays 14 1/2 + 10 1/2" Working pressure of plate by rules 164  
 Diameter of tubes 2 1/2" Pitch of tubes 32 3/8 + 32 3/4" Material of tube plates S Thickness: Front 7/8" Back 3/4" Mean pitch of stays 7 5/8"  
 Pitch across wide water spaces 14 1/2 + 10 1/2" Working pressures by rules 216 Girders to Chamber tops: Material S Depth and thickness of girder at centre 8 1/4 + 1 1/2" Length as per rule 30" Distance apart 10" Number and pitch of Stays in each 2.9 1/2"  
 Working pressure by rules 164 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 ✓

W 646-0171



**DONKEY BOILER—**

*Iron*

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:— *Two top & two bottom end bolts, two main bearing bolts, one set coupling bolts, one set fuel & bilge pump valves, two sets piston springs, one propeller shaft, two propeller blades, assorted bolts & nuts, Iron of various sizes.*

The foregoing is a correct description,

THE NORTH EASTERN MARINE ENGINEERING CO. LD. Manufacturer.

*J. Harrison*  
 Dates of Survey while building: During progress of work in shops: 1901. May 1, June 3, 7, July 9, 1902. Aug. 2, 12, Sept. 6, 12, 26, Nov. 18, 21, 27, 28  
 During erection on board vessel: Dec. 16, 20, 23, 24, 1902. Jan. 16, 20, 23  
 Total No. of visits: 23

Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*

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

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 *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*

*The machinery of this vessel has been constructed under special survey the materials and workmanship are sound and good and under the vessel's slip in our opinion to have record of L.M.C. 1.02.*

It is submitted that this vessel is eligible for THE RECORD. *L.M.C. 1.02* FD Elec. light.

*CM*  
*28.1.02*  
*29.1.02*

The amount of Entry Fee. . . £ 2 : : : When applied for, 27 JAN 1902  
 Special . . . . . £ 33 : 19 : :  
 Donkey Boiler Fee . . . . . £ : : :  
 Travelling Expenses (if any) £ : : : When received, 31.1.02

*B. G. A. Hake & R. Haig*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. JAN 31 1902

Assigned

*+ L.M.C. 1.02 FD*



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Certificate (if required) to be sent to Newcastle-on-Tyne.

The Surveyors are requested not to write on or below the space for Committee's Minute.