

Rpt. 4.

## REPORT ON MACHINERY.

Port of *Sunderland*

Received at London Office

19

No. in Survey held at *Sunderland* Date, first Survey *23rd Feby 1901* Last Survey *27th Feby 1902*  
 Reg. Book. on the *Steel Screw Steamer "Kelvinside"* (Number of Visits *58*) Tons { Gross *3531*  
 Net *2203*  
 Master *E. H. O'Neal* Built at *Sunderland* By whom built *Short Bros* When built *1902*  
 Engines made at *Sunderland* By whom made *N. E. M. & Co. Ltd.* when made *1902*  
 Boilers made at *"* By whom made *"* when made *1902*  
 Registered Horse Power Owners *Glasgow S.S. Coy* Port belonging to *Glasgow*  
 Nom. Horse Power as per Section 28 *333* 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"-41"-68"* Length of Stroke *48"* Revs. per minute *70* Dia. of Screw shaft *as per rule 14.28*  
 Dia. of Tunnel shaft *as per rule 12.68* Dia. of Crank shaft journals *as per rule 13.32* Dia. of Crank pin *13 3/8"* Size of Crank webs *20 1/4 x 8 1/4* Dia. of thrust shaft under  
 collars *1 1/4"* Dia. of screw *17-6"* Pitch of screw *17-6"* No. of blades *4* State whether moveable *No* Total surface *90 sq ft*  
 No. of Feed pumps *2* Diameter of ditto *3 1/2"* Stroke *24"* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *2* Diameter of ditto *4"* Stroke *24"* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *3* Sizes of Pumps *10 1/2 x 11, 10 1/2 x 6 x 4 x 6* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *4 of 3 1/2" dia.* In Holds, &c. *2 of 3 1/2" in each hold & tunnel well*

No. of bilge injections *1* sizes *5"* Connected to condenser, or to circulating pump *C.P.* 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 *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 *New vessel* Is the screw shaft tunnel watertight *Yes*  
 Is it fitted with a watertight door *Yes* worked from *Deck*

BOILERS, &c.—(Letter for record *S*) Total Heating Surface of Boilers *4925 sq ft* Is forced draft fitted *Yes*  
 No. and Description of Boilers *Two ordinary Marine* Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs*  
 Date of test *21/10/01* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *59.5 sq ft* No. and Description of safety valves to  
 each boiler *2 Spring* Area of each valve *8.29 sq in* Pressure to which they are adjusted *180 lbs* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *12"* Mean dia. of boilers *14-7 3/32"* Length *11-7 1/4"* Material of shell plates *S*  
 Thickness *1 5/32"* Range of tensile strength *29-32 T.* Are they welded or flanged *No* Descrip. of riveting: cir. seams *D.R.L.* long. seams *T.R.D.B.*  
 Diameter of rivet holes in long. seams *1 3/16"* Pitch of rivets *8 5/16"* Lap of plates or width of butt straps *17 3/4"*  
 Per centages of strength of longitudinal joint rivets *85.7* Working pressure of shell by rules *182.5 lbs* Size of manhole in shell end *6" x 12"*  
 Size of compensating ring *Flanged* No. and Description of Furnaces in each boiler *3 Morrisons* Material *S* Outside diameter *3-11 1/2"*  
 Length of plain part *top 1 1/2"* Thickness of plates *bottom 3 9/16"* Description of longitudinal joint *Welded* No. of strengthening rings *✓*  
 Working pressure of furnace by the rules *185 lbs* Combustion chamber plates: Material *S* Thickness: Sides *23/32"* Back *1 1/16"* Top *33/32"* Bottom *3/4"*  
 Pitch of stays to ditto: Sides *9 3/4 x 10* Buck *9 3/8 x 9* Top *9 3/4 x 10* If stays are fitted with nuts or riveted heads *No* Working pressure by rules *183 lbs*  
 Material of stays *S* Diameter at smallest part *2 1/4"* Area supported by each stay *104 sq in* Working pressure by rules *181 lbs* End plates in steam space:  
 Material *S* Thickness *1 1/4"* Pitch of stays *21 x 19* How are stays secured *N.Y.W.* Working pressure by rules *184 5/8 lbs* Material of stays *S*  
 Diameter at smallest part *7.24 sq in* Area supported by each stay *399 sq in* Working pressure by rules *191 lbs* Material of Front plates at bottom *S*  
 Thickness *1 3/16"* Material of Lower back plate *S* Thickness *2 3/32"* Greatest pitch of stays *13 1/4 x 9 3/8* Working pressure of plate by rules *186 lbs*  
 Diameter of tubes *3 1/2"* Pitch of tubes *3 3/4 x 3 3/4* Material of tube plates *S* Thickness: Front *1 1/8"* Back *1 3/16"* Mean pitch of stays *7 1/4 x 7 1/2*  
 Pitch across wide water spaces *1-1 1/4* Working pressures by rules *186 lbs* Girders to Chamber tops: Material *S* Depth and  
 thickness of girder at centre *7 1/2"* Length as per rule *29 1/2"* Distance apart *9 3/4"* Number and pitch of Stays in each *2 of 10"*  
 Working pressure by rules *199 lbs* Superheater or Steam chest; how connected to boiler *None* 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

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Lloyd's Register  
Foundations

DONKEY BOILER— No. 1 Description Ordinary Marine, Two plain furnaces  
Made at *Shepton* By whom made *Riley Bros* When made *24/10/01* Where fixed *Stockhold*  
Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *2612* Fire grate area *24 sq* Description of safety valves *Spring*  
No. of safety valves *2* Area of each *7.06 sq* Pressure to which they are adjusted *100 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *10'-0"* Length *10'-0"* Material of shell plates *S* Thickness *2 1/32"* Range of tensile strength *27 3/32* Descrip. of riveting long. seams *D.B.S.* Dia. of rivet holes *15/16"* Whether punched or drilled *D.* Pitch of rivets *4"-2R*  
Lap of plating *9 1/2 BS* Per centage of strength of joint *76.5* Thickness of shell *end* plates *27/32"* Radius of do. *1/8"* Pitch of Stays to do. *18"*  
Dia. of stays *2 1/4"* Diameter of furnace Top *36"* Bottom *L* Length of furnace *6'-7"* Thickness of furnace plates *17/32"* Description of joint *Weld* Thickness of *C. Chr* furnace crown plates *1/2 to 9/16"* Stayed by *1 1/8 off ss. 7 1/2 to 8 1/4 P. nuts* Working pressure of shell by rules *113 lbs*  
Working pressure of furnace by rules *106 lbs* Diameter of *tube* uptake *3 1/2"* Thickness of *tube* uptake plates *F 2 1/32 B 2 1/2* Thickness of *stay* water tubes *5/16"*

SPARE GEAR. State the articles supplied:— *Set of main bearings, top & bottom end & coupling bolts & nuts, air, fire, feed & bilge pump valves propeller shaft, tubes for boilers & condenser, assorted bolts, rivets, & iron.*

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

Dates During progress of work in shops— 1901— Feb 23, 27, March 5, 14, 19, 26, April 1, 16, 18, 24, 30, May 9, 15, 20, 23, June 3, 16, July 2, 8, 11, 15, 19, 24, 29, 31, Aug 14, 20, 22.  
of Survey During erection on board vessel— 30, Sep 4, 10, 17, 20, Oct 9, 11, 21, 24, Nov 1, 6, 11, Dec 4, 12, 1902— Jan 3, 13, 16, 24, 28, 29, Feb 6, 11, 13, 19, 21, 24, 25, 26, 27.  
building Total No. of visits 58.

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 *W.I.* 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 herein described has been built under Special Survey, the workmanship & material are good & efficient. Boilers & main steam pipes tested by water to double the working pressure, afterward examined under steam & found satisfactory.

In my opinion it is worthy of the notation in the Register Book of + LMC 2/02

It is submitted that this vessel is eligible for THE RECORD. ✠ LMC 2.02 F.D. Elec. light.

C.A.  
11. 3. 02

The Surveyor appears to have overlooked forced draught being fitted when working out the H.P. & charging fee. H.P. should be 374

*W.S.*  
11. 3. 02

The amount of Entry Fee. £ 3 : : When applied for, 7. 3. 1902  
Special £ 36 : 13 : : 29. 3. 02  
Donkey Boiler Fee £ 2 : : When received, 27. 3. 02  
Travelling Expenses (if any) £ : : 1902

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

Committee's Minute

TUES. MAR 11 1902

Assigned

+ LMC 2.02 7D

MACHINERY CERTIFICATE  
WRITTEN.



Lloyd's Register  
Foundation