

## REPORT ON MACHINERY.

Port of **NEWCASTLE-ON-TYNE**

THUR 26 NOV 1896

No. in Survey held at **Newcastle**  
Reg. Book.Date, first Survey **1896 Jan'y 21<sup>st</sup>** Last Survey **17 Nov. 1896**

Received at London Office

18

on the **Shel S.S. Cornwall**

(Number of Visits)

Master **J. Mc Gibbon** Built at **Newcastle** By whom built **R. W. Hawthorn Leslie & Co** When built **1896**Engines made at **Newcastle** By whom made **R. W. Hawthorn Leslie & Co L<sup>d</sup>** when made **1896**Boilers made at **Newcastle** By whom made **R. W. Hawthorn Leslie & Co L<sup>d</sup>** when made **1896**Registered Horse Power **505** Owners **Federal Steam Navigation Co. Ltd.** Port belonging to **London**Nom. Horse Power as per Section 28 **505** Is Electric Light fitted **yes**

**ENGINES, &c.**—Description of Engines **Triple Expansion** No. of Cylinders **3** No. of Cranks **3**

Diameter of Cylinders **30 - 48 - 78** Length of Stroke **54** Revolutions per minute **70** Diameter of Screw shaft as per rule **14.2**

Diameter of Tunnel shaft as per rule **13 1/2** Diameter of Crank shaft journals **14 3/4** Diameter of Crank pin **15** Size of Crank webs **10**

Diameter of screw **18-6** Pitch of screw **21-0** No. of blades **4** State whether moveable **yes** Total surface **96.0**

No. of Feed pumps **2** Diameter of ditto **4 1/2** Stroke **27** Can one be overhauled while the other is at work **yes**

No. of Bilge pumps **2** Diameter of ditto **4 1/2** Stroke **27** Can one be overhauled while the other is at work **yes**

No. of Donkey Engines **Two** Sizes of Pumps **4 1/2 x 10.5. 8 1/2 x 14.5** No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room **Four. One 4. three 3 1/2** In Holds, &c. **No 1. 2. 3. 4 holds from 3 1/2, No 5 hold**

No. of bilge injections **1** sizes **7 1/2** Connected to condenser, or to circulating pump **C.P.** Is a separate donkey suction fitted in Engine room & size **yes 4"**

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 **at line**

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 **forward bilge pipes** How are they protected **strong wood casings**

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 **while building** Is the screw shaft tunnel watertight **yes**

Is it fitted with a watertight door **yes** worked from **top platform**

**BOILERS, &c.**—(Letter for record **S**) Total Heating Surface of Boilers **6754** Is forced draft fitted **yes** Howdon System

No. and Description of Boilers **Three Cylindrical Single end** Working Pressure **160** Tested by hydraulic pressure to **320**

Date of test **16-6-96** Can each boiler be worked separately **yes** Area of fire grate in each boiler **60** No. and Description of safety valves to each boiler **Two spring**

Area of each valve **9.6** Pressure to which they are adjusted **165** Are they fitted with easing gear **yes**

Smallest distance between boilers or uptakes and bunkers or woodwork **18** Mean diameter of boilers **15-0**

Length **11-6** Material of shell plates **Steel** Thickness **1 1/4** Description of riveting: circum. seams **d lap** Long. seams **d shape 7 unequal breadth**

Diameter of rivet holes in long. seams **1 3/8** Pitch of rivets **8 1/8 - 5 7/8** Lap of plates or width of butt straps **15 3/8 - 23 1/4**

Percentages of strength of longitudinal joint **89** Working pressure of shell by rules **162** Size of manhole in shell **16 x 12**

Plate **34.4** No. and Description of Furnaces in each boiler **3. Anti boiler Purness Wing boiler horizontal** Material **Steel** Outside diameter **m 46 p 43**

Length of plain part **top 7 x 1 1/4 bottom 7 x 1 1/4** Thickness of plates **M 1 1/2 P 1 1/2** Description of longitudinal joint **welded** No. of strengthening rings **yes**

Working pressure of furnace by the rules **161** Combustion chamber plates: Material **Steel** Thickness: Sides **5/8** Back **5/8** Top **5/8** Bottom **3/4**

Each of stays to ditto: Sides **9 x 8** Back **9 x 8 1/2** Top **9 x 8** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **167**

Material of stays **Steel** Diameter at smallest part **5.1-4.5 6.1-7.3** Area supported by each stay **72 76.5** Working pressure by rules **161** End plates in steam space: Material **Steel** Thickness **1 1/2 + 3/4** Pitch of stays **18 1/8 x 17** How are stays secured **dn & w** Working pressure by rules **197** Material of stays **Steel**

Area supported by each stay **30.8** Working pressure by rules **196** Material of Front plates at bottom **Steel** Thickness **15 1/16** Material of Lower back plate **Steel** Thickness **3/32** Greatest pitch of stays **as per plan** Working pressure of plate by rules **app 4**

Diameter of tubes **2 1/2** Pitch of tubes **3 3/4** Material of tube plates **Steel** Thickness: Front **15 1/16** Back **3/4** Mean pitch of stays **11 1/4 x 7 1/2**

Chamber across wide water spaces **14** Working pressures by rules **165** Girders to Chamber tops: Material **Steel** Depth and thickness of girder at centre **10 x 1 1/4** Length as per rule **32** Distance apart **9** Number and pitch of Stays in each **3 - 8**

Working pressure by rules **179** Superheater or Steam chest; how connected to boiler **—** 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 **yes**

Pitch of rivets **yes** Working pressure of shell by rules **yes** Diameter of flue **yes** Material of flue plates **yes** Thickness **yes**

Stays fitted 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**



**DONKEY BOILER—** Description *Vertical 4 cross tubes*  
 Made at *Jahenhead* By whom made *Clarke Chapman & Co* When made *7-10-96* Where fixed *Main deck*  
 Working pressure *90* tested by hydraulic pressure to *180* No. of Certificate *4910* Fire grate area *190* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *5.9* Pressure to which they are adjusted *90* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *6-0* Length *12-6* Material of shell plates *Steel* Thickness *7/16*  
 Description of riveting long seams *d r lap* Diameter of rivet holes *13/16* Whether punched or drilled *drilled* Pitch of rivets *2 23/32*  
 Lap of plating *3 27/32* Per centage of strength of joint *Rivets 74.7 Plates 70.1* Thickness of shell crown plates *9/16* Radius of do. *5 ft.* No. of stays to do. *7*  
 Dia. of stays *1 3/4* Diameter of furnace Top *4-8* Bottom *5-1 1/2* Length of furnace *4-9* Thickness of furnace plates *5/8* Description of joint *d r lap* Thickness of furnace crown plates *9/16* Stayed by *as above* Working pressure of shell by rules *90*  
 Working pressure of furnace by rules *95* Diameter of uptake *15* Thickness of uptake plates *7/16* Thickness of water tubes *3/8*  
*one row of 12 stays 11 pitch*

**SPARE GEAR.** State the articles supplied: *Spare tail shaft, 1 length crank shaft, 4 propeller blades*  
*Set of Connecting rod brasses, Air pump bucket & rod, Piston rod, Two top end, two bottom end, two main bearings & the set coupling block, piston & big valve, set of packing rings, assorted bolts & nuts, a few bars of iron & other small gear.*

*For* The foregoing is a correct description,  
**R. & W. HAWTHORN, LESLIE & CO., LIMITED** Manufacturer.

Dates of Survey while building { During progress of work in shops - - - - -  
 During erection on board vessel - - - - -  
 Total No. of visits *37* *34 6 10 (14 GATHAKI) 17 (GUTHINEMARSH)*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The plans of main & donkey boilers are forwarded*  
*The material & workmanship is good.*  
*The Mach<sup>y</sup> has been built under special survey. the engine tested & the Safety Valves set under steam.*  
*The boilers are worked with forced draught on Howdown system & the vessel is fitted with the Electric Light.*  
*The Mach<sup>y</sup> is eligible in my opinion for classification & the rec<sup>d</sup>*  
*+ I.M.C. 11-96.*

*It is submitted that this vessel is eligible for*  
**THE RECORD. + L.M.C. 11-96. F.D.**  
*Elec. Light.*

*R.L.*  
*26.11.96*

*R.E.*  
*26/11/96*

*Large blue ink signature/initials*

The amount of Entry Fee.. £ *3* : : :  
 Special .. .. £ *45* : *5* : :  
 Donkey Boiler Fee .. .. £ *MACHINE* : *CERTIFICATE* : :  
 Travelling Expenses (if any) £ *WRITTEN* : : :  
 When applied for, *24.11.18.96*  
 When received, *23.2.18.97*

*John H Heck.*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipp

Committee's Minute **FRI 27 NOV 1896**

Assigned

*+ L.M.C. 11.96*

*+ D*



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*Newcastle on Tyne*

Certificate (if required) to be sent to

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