

REPORT ON MACHINERY.

Port of NEWCASTLE-ON-TYNEReceived at London Office SAT 13 FEB 1897

No. in Survey held at Newcastle Date, first Survey 14th April 1896 Last Survey 5 Feb 1897
 Reg. Book. on the Steel S. S. "Devon" (Number of Visits 3)
 Master J. McFibbin 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. when made 1896
 Boilers made at D. By whom made D. when made 1896
 Registered Horse Power 505 Owners Federal Steam Nav. Co. (Lim) Port belonging to Dundee
 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 14.2
 Diameter of Tunnel shaft 13.5 as per rule 14.4 Diameter of Crank shaft journals 14.4 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 4.5 Stroke 27 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 Two Sizes of Pumps 4.5 D x 10.5 8.5 D x 14.5 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Four - One 4, three 3.5 In Holds, &c. No 1. 2. 3 & 4 hold two 3.5 No 5 hold
 One 3.5, Tunnel well one 3.5
 No. of bilge injections 1 sizes 7.5 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 casing
 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 6754.0 Is forced draft fitted yes
 No. and Description of Boilers 3 Cylindrical Single Ends Working Pressure 160 Tested by hydraulic pressure to 320
 Date of test 26.10.96 Can each boiler be worked separately yes Area of fire grate in each boiler 60.0 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 1.4 Description of riveting: circum. seams d lap long. seams double straps
 Diameter of rivet holes in long. seams 1.46 Pitch of rivets 8.13 5.8 Lap of plates or width of butt straps 15.38 23.4
 Per centages of strength of longitudinal joint 89 Working pressure of shell by rules 162 Size of manhole in shell 16 x 12
 plate 84.4 Size of compensating ring 7 x 1.4 No. and Description of Furnaces in each boiler 3 Wing d. Furnaces Material Steel Outside diameter 2.46
 Length of plain part top 1.45 Thickness of plates bottom 1.4 Description of longitudinal joint welded No. of strengthening rings 31
 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
 Pitch of stays to ditto: Sides 9 x 8 Back 9 x 8.5 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 5.145 Area supported by each stay 76.5 Working pressure by rules 161 End plates in steam space:
 Material Steel Thickness 1.8 + 3/64 Pitch of stays 18.8 x 17 How are stays secured d x w Working pressure by rules 197 Material of stays Steel
 Diameter at smallest part 6.74 Area supported by each stay 30.8 Working pressure by rules 196 Material of Front plates at bottom Steel
 Thickness 1.5 Material of Lower back plate Steel Thickness 3.1 Greatest pitch of stays as per plan Working pressure of plate by rules 44.160
 Diameter of tubes 2.5 Pitch of tubes 3.3/4 Material of tube plates Steel Thickness: Front 1.5 Back 3/4 Mean pitch of stays 11.4 x 7.5
 Pitch 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 1.4 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 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

DONKEY BOILER— Description *Vertical 4 Cross tubes*
 Made at *Gatehead* By whom made *Clark Chapman & Co* When made *24.10.96* Where fixed *Main Deck*
 Working pressure *90* tested by hydraulic pressure to *180* No. of Certificate *4920* 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 *12-8* Material of shell plates *Steel* Thickness *7/16*
 Description of riveting long seams *d lap* Diameter of rivets *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 *74.7* Rivets *74.7* Thickness of shell/crown plates *9/16* Radius of do. *5 1/4* No. of Stays to do. *7*
 Dia. of stays *1 3/4* Diameter of furnace Top *4-8* Bottom *5-4 1/2* Length of furnace *4-9* Thickness of furnace plates *9/16* Description of joint *d 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*
 Row of stays *11 pitch*

SPARE GEAR. State the articles supplied: *2 tail shafts, one length crank shaft, 4 propeller blades, connecting rod bearings, air pump bucket & rod, air pump rod, two top end, two bottom end, two main bearings, 2 the set coupling bolts, feed & tiller valves, set of packing rings, assorted bolts & nuts, a few bars of iron & other small gear.*

The foregoing is a correct description,

For **R. & W. HAWTHORN, LESLIE & Co. Ltd** Manufacturer.

F. J. Marshall
 Dates of Survey while building
 During progress of work in shops - *1896 Apr 14-29 May 22-29 June 2-9 16-30 July 7-8 15-21 25-31 Aug 4-6 11-12 27 Sep 2-14 16-28 30 Oct 5-9*
 During erection on board vessel - *26-30 Nov 2-4 Dec 12-14 18-11 17-22 31-1897 Jan 5-11 18-23 26-29 Feb 2-5*
 Total No. of visits *47*

General Remarks (State quality of workmanship, opinions as to class, &c. *Photo. print of main boiler forwarded Liverpool Electric Light report will be forwarded shortly.*)

The material & workmanship is good
The Mach^y has been built under special survey, the engines tested & the safety valves set under steam.

The Machinery is a duplicate of that fitted in the S. S. Cornwall. Nav. Rep.^t No: 34106

The boiler are worked with fresh draught on Howdoin system & the vessel is fitted with the Electric Light

The Mach^y is eligible in my opinion for classification & the record + I.M.C. 2.97

It is submitted that this vessel is eligible

RECORD + I.M.C. 2.97 E.D. Elec. Light

H.L.
15.2.97

The amount of Entry Fee... £ 3 : : : When applied for, *12-2-97*
 Special ... £ 45 : 5 : : :
 Donkey Boiler Fee ... £ : : : : When received, *23-2-97*
 Travelling Expenses (if any) £ : : : :

John H. Heck.

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

Committee's Minute **1UES 16 FEB 1897**

Assigned

+ 2 M.C. 2.97 7D