

REPORT ON MACHINERY.

WED. 23 AUG 1893

Port of NEWCASTLE-ON-TYNE.

Received at London Office

18

No. in Survey held at Newcastle Date, first Survey 11 March Last Survey Nov 24 July 1893
 Reg. Book. 75 on the S.S. "Warrigal" (Number of Visits) 5th 14 August 1893
 Master J. C. Ilbery Built at Sunderland By whom built Wigham Richardson & Co when made 1893
 Engines made at Newcastle By whom made Wigham Richardson & Co when made 1893
 Boilers made at Newcastle By whom made do when made 1893
 Registered Horse Power 650 Owners H. Lund Port belonging to London
 Nom. Horse Power as per Section 28 513

Tons } Gross 4384.29
 Net 2448.49
 When built 1893

ENGINES, &c.— Description of Engines Quadruple Expansion, four cranks No. of Cylinders Four
 Diameter of Cylinders 25 1/2 - 36 1/2 - 52 - 47 8 Length of Stroke 54" Revolutions per minute 65 Diameter of Screw shaft as per rule 13 3/4
 Diameter of Tunnel shaft as fitted 13 3/4 Diameter of Crank shaft journals 14 1/2" Diameter of Crank pin 14 1/2" Size of Crank webs 21 1/2" x 9 1/2"
 Diameter of screw 18' 6" Pitch of screw 21' 0" No. of blades 4 State whether moveable Yes Total surface 92 sq ft.
 No. of Feed pumps 2 Diameter of ditto 10' x 8" Stroke 21" Can one be overhauled while the other is at work Yes, (Weir's pumps)
 No. of Bilge pumps 2 Diameter of ditto 4 1/4" Stroke 28" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 4 1/2" x 10" x 10" & 10" x 10" x 10" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Four, 3 1/2" diameter In Holds, &c. Seven, 3 1/2" diameter,

No. of bilge injections 1 sizes 6" Connected to condensers or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes 3 1/2" dia.
 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 Valves & cocks
 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 main Steam pipe. How are they protected by trunk plating
 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 top platform.

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 9012 5/8
 No. and Description of Boilers Three cylindrical double ended Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs
 Date of test 11, 7, 93 Can each boiler be worked separately Yes Area of fire grate in each boiler 90 sq ft No. and Description of safety valves to each boiler Two, spring loaded Area of each valve 9.62 sq" Pressure to which they are adjusted Are they fitted with easing gear
 Length 16' 0" Material of shell plates Steel Thickness 1 1/2" Description of riveting: circum. seams d, e, t, lap long. seams d, b, t, 2.
 Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 9" Lap of plates or width of butt straps 21"
 Per centages of strength of longitudinal joint rivets 96.9 Working pressure of shell by rules 226 lbs Size of manhole in shell 16" x 12" plate 83.3
 Size of compensating ring 7 1/2" x 1 1/2" No. and Description of Furnaces in each boiler 6 Morrison's Material Steel Outside diameter 40"
 Length of plain part top 17" Thickness of plates crown 17/32 Description of longitudinal joint welded No. of strengthening rings ✓ bottom ✓
 Working pressure of furnace by the rules 204 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back ✓ Top 5/8" Bottom 3/2"
 Pitch of stays to ditto: Sides 8" Back ✓ Top 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 211 lbs
 Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 64 sq" Working pressure by rules 200 lbs End plates in steam space:
 Material Steel Thickness 1 3/32" Pitch of stays 15 1/4" x 14 3/4" How are stays secured d, n, q, w Working pressure by rules 243 lbs Material of stays Steel
 Diameter at smallest part 2 1/2" Area supported by each stay 225 sq" Working pressure by rules 200 lbs Material of Front plates at bottom Steel
 Thickness 13/16" Material of Lower back plate ✓ Thickness ✓ Greatest pitch of stays ✓ Working pressure of plate by rules ✓
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 5/8" Material of tube plates Steel Thickness: Front 7/8" Back 25/32" Mean pitch of stays as plan
 Pitch across wide water spaces 14 1/2" Working pressures by rules 200 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 11 1/2" x 7" (double) Length as per rule 39" Distance apart 8 1/8" Number and pitch of Stays in each 3 - 8"
 Working pressure by rules 230 lbs 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 *Cylindrical Multitubular*

Made at *Stoke Newington* By whom made *T. Swarson & Co.* When made *6/19/93*. Where fixed *Stoke Newington*

Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *674* Fire grate area *24 sq ft* Description of safety valves *Direct Spring*

No. of safety valves *2* Area of each *7.0 sq ft* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *9 ft* Length *10 ft* Material of shell plates *S* Thickness *5/8"*

Description of riveting long seams *D.B.S. double* Diameter of rivet holes *1 3/16"* Whether punched or drilled *d.* Pitch of rivets *3 3/8"*

Lap of *straps* *8 1/4"* Per centage of strength of joint Rivets *91* Plates *45.9* Thickness of shell *end* plates *3/4"* Radius of do. *pitch* of Stays to do. *18" x 13"*

Dia. of stays *2" eff.* Diameter of furnace *Top 2' 10" Bottom —* Length of furnace *6' 7 1/2 ft* Thickness of furnace plates *1 1/32"* Description of joint *D.B.S.* Thickness of furnace *end* plates *1 1/32"* Stayed by *1 1/2" Stays 9" x 9" pitch* Working pressure of shell by rules *84 lbs*

Working pressure of furnace by rules *85 1/2 lbs* Diameter of *uptake* tubes *3"* Thickness of *uptake* plates *5/8"* Thickness of *water* tubes *5/16"*

SPARE GEAR. State the articles supplied:— *1 Set of connecting rod top & bottom end bolts and nuts. 2 main bearing bolts and nuts. Set of coupling bolts and nuts. 1 set of feed and bilge pump valves, propeller nuts bolts and associated iron.*

The foregoing is a correct description,
Ltjhan Richardson Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *This vessel has left for Sunderland, & to complete the survey the following require to be done:— the donkey boiler and fittings to be efficiently secured, all safety valves to be adjusted under steam, the pumping arrangements to be completed as per approved plan, the machinery to be tried under steam, and the spare gear examined. The machinery of this vessel has been built under special survey the materials and workmanship are sound and good and render the vessel eligible in my opinion to have the notation **LMC-893** in the Register Book when the survey has been completed as above & the surveyors at Sunderland have been advised by letter.*

The whole of the above detailed work has now been completed in a satisfactory manner J.S. Field

It is submitted that this vessel is eligible for THE RECORD + LMC-893 -
J.S.F.
24/8/93 -

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

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|---|-----------------------|-------------------|-------------------------|
| Certificate (if required) to be sent to | MACHINERY CERTIFICATE | WRITTEN | <i>Newcastle Office</i> |
| The amount of Entry Fee.. | £ 3 : | When applied for, | |
| Special | £ 45 : 13 | 1. 8. 18. 93 | |
| Donkey Boiler Fee | £ | When received, | |
| Travelling Expenses (if any) £ | | at Newcastle | |

Thomas Field & John Walliker
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI 25 AUG 1893**

Assigned **+ LMC 893**

