

# REPORT ON MACHINERY.

SAT 24 OCT 1896

Received at London Office 18

Part of Newcastle  
 No. in Survey held at South Shields Date, first Survey 17 April Last Survey 8 October 1896  
 Reg. Book. 345 on the Screw Steamer 'Saran' (Number of Visits 29)  
 Master G. Norris Built at South Shields By whom built John Readhead & Sons When built 1896  
 Engines made at South Shields By whom made John Readhead & Sons when made 1896  
 Boilers made at South Shields By whom made John Readhead & Sons when made 1896  
 Registered Horse Power 300 Owners Scrutton Sons & Co Port belonging to London  
 Nom. Horse Power as per Section 28 260

ENGINES, &c. — Description of Engines Triple expansion on 3 cranks No. of Cylinders 3  
 Diameter of Cylinders 25, 40, 65 Length of Stroke 42 Revolutions per minute 60 Diameter of Screw shaft 11 1/2  
 Diameter of Tunnel shaft 11 1/2 Diameter of Crank shaft journals 12 Diameter of Crank pin 12 Size of Crank webs 8 1/2 x 14 1/2  
 Diameter of screw 16'-0" Pitch of screw 16'-6" to 19'-0" No. of blades 4 State whether moveable no Total surface 70 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 3/8 Stroke 24 Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps Feed 6 x 4 x 6 Daphn No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Two 3" Wings + one 3 1/2" Centre In Holds, &c. 1 hold - Two 3" dia; 1 hold - Two 3" dia; 1 hold -  
Two 3" dia; 1 hold - Two 3" dia; 1 hold well - one 2 1/2" dia.  
 No. of bilge injections one sizes 5 1/2 Connected to condenser, or 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 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 top platform

BOILERS, &c. — (Letter for record (u)) Total Heating Surface of Boilers  
 No. and Description of Boilers One Cyl. & full length single ended Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs  
 Date of test 19.8.96 Can each boiler be worked separately ✓ Area of fire grate in each boiler 72 sq ft No. and Description of safety valves to each boiler Two Spring  
 Area of each valve 10.32 sq in Pressure to which they are adjusted 160 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 22" Mean diameter of boilers 16'-0"  
 Length 11'-6" Material of shell plates Steel Thickness 1 1/16 Description of riveting: circum. seams Lap double long. seams DB treble  
 Diameter of rivet holes in long. seams 1 1/16 Pitch of rivets 9 1/2 ~~Length of plates~~ width of butt straps 21"  
 Per centages of strength of longitudinal joint rivets 88 Working pressure of shell by rules 186 lbs Size of manhole in shell 16 x 12  
 Size of compensating ring 8 1/2 x 1 1/16 No. and Description of Furnaces in each boiler 3 Furnes Material Steel Outside diameter 3'-11 1/8"  
 Length of plain part top ✓ Thickness of plates crown 9 1/16 Description of longitudinal joint welded No. of strengthening rings one  
 bottom ✓ Working pressure of furnace by the rules 172 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 7/8"  
 Pitch of stays to ditto: Sides 8 1/2" Back 9" Top 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 166 lbs  
 Material of stays Iron Diameter at smallest part 1 9/16 Area supported by each stay 76 1/2 sq in Working pressure by rules 194 lbs End plates in steam space:  
 Material Steel Thickness 1 3/16 Pitch of stays 17 3/4 How are stays secured D. N. W. Working pressure by rules 211 lbs Material of stays Steel  
 Diameter at smallest part 2 3/4 Area supported by each stay 310 sq in Working pressure by rules 176 lbs Material of Front plates at bottom Steel  
 Thickness 3/4 Material of Lower back plate Steel Thickness 13/16 Greatest pitch of stays 11 1/2" Working pressure of plate by rules 172 lbs  
 Diameter of tube 2 1/2 Pitch of tube 3 3/4 x 3 5/8 Material of tube plates Steel Thickness: Front 3/4 Back 3/4 Mean pitch of stays 9 3/16"  
 Pitch across wide water spaces 13 Working pressures by rules 240 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 x 1 1/2 Length as per rule 2-9 Distance apart 8 1/2 Number and pitch of Stays in each three 8"  
 Working pressure by rules ✓ 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 ✓

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NW 6849-0096

**DONKEY BOILER**— Description *Cylindrical Multiple Single ended*  
 Made of *S. Shields* By whom made *John Readhead & Sons* When made *1896* Where fixed *on main deck*  
 Working pressure *80 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *4892* Fire grate area *24 sq ft* Description of safety valves *Spring*  
 No. of safety valves *one* Area of each *12.56 sq ft* Pressure to which they are adjusted *80 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *10-0* Length *9-6* Material of shell plates *Steel* Thickness *5/8*  
 Description of riveting long seams *Lap double* Diameter of rivet holes *1 1/16* Whether punched or drilled *drilled* Pitch of rivets *3 1/2*  
 Lap of plating *5/8* Per centage of strength of joint Rivets *69* end *3/4* Thickness of shell plates *3/4* Radius of do. *flat* No. of Stays to do. *10*  
 Dia. of stays *2 1/8* Diameter of furnace Top *3-0* Bottom *2-6* Length of furnace Top *6-0* Bottom *8-6* Thickness of furnace plates Top *1/2* Bottom *9/16* Description of joint *Lap Single* Thickness of *comb. br.* plates *1/2* Stayed by *1 3/8* stays *8 1/2* pitch Working pressure of shell by rules *85 lb*  
 Working pressure of furnace by rules *103 lb* Diameter of *uptake* tubes *3 1/4* Thickness of *uptake* plates *1/16* Thickness of *stay* tubes *1/4*

**SPARE GEAR.** State the articles supplied:— *Propeller shaft, Propeller, 6 Condenser tubes, 6 boiler tubes, 2 Safety Valve springs, 1 Packing ring, 2 top end bolts & nuts, 2 bottom end bolts & nuts, 2 Main bearing bolts & nuts, Set of Coupling bolts & nuts, 2 Feed & Bidge pump valves, 100 of various sizes, Assorted bolts & nuts*

The foregoing is a correct description,  
*John Readhead & Sons* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The Machinery of this vessel has been built under special survey. The materials & workmanship are sound and good and on completion Engines were tried under steam and found satisfactory which renders the vessel eligible in my opinion to have record L.M.C. 10.96 in the Register Book & Howden's system of forced draught fitted*

Dates of Survey while building  
 During progress of work in shops -  
 During erection on board vessel -  
 Total No. of visits

It is submitted that this vessel is eligible for **THE RECORD, + L.M.C. 10.96 and F.D.**

*R.S.* 24.10.96  
*R.S.* 24/10/96

*Large handwritten signature*

Certificate (if required) to be sent to **NEWCASTLE-ON-TYNE**

The amount of Entry Fee.. £ *2* : 0 :  
 Special .. £ *33* : 0 :  
 Donkey Boiler Fee .. £ *2* : 2 :  
 Travelling Expenses (if any) £ : :  
 When applied for, *23.10.96*  
 When received, *7.11.96*

*J. W. Pitt*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES 27 OCT 1896**

Assigned *L.M.C. 10.96 F.D.*

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

Official  
 Signal Letter  
 1058  
 No., Date,  
 Whether British or Foreign Built  
 British  
 Number of  
 Number of  
 Rigged  
 Stern  
 Build  
 Galleries  
 Head  
 Framework of vessel  
 Number of  
 Number of  
 and the  
 Total to  
 at side  
 No. of  
 Engines  
 Three  
 Under T  
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 Space  
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 Prop  
 Other  
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 Deduct  
 No. of  
 Name,  
 Date  
 W B & L

