

# REPORT ON MACHINERY.

15453

No. 543

(Received in London Office 21/7/81)

No. in Survey held at Newcastle Date, first Survey 3<sup>d</sup> Nov 1880 Last Survey 18 June 1881

on the Screw Steamer "Darlington" Tons 1990  
1293

Master James Hogg Built at Newcastle When built 1881

Engines made at Newcastle By whom made J Clark & Co when made 1881

Boilers made at do By whom made do when made 1881

Registered Horse Power 250 Owners W Mitburn & Co Port belonging to London

## ENGINES, &c.—

Description of Engines Inverted compound, surface condensing.

Diameter of Cylinders 35" & 65" Length of Stroke 42" No. of Rev. per minute 60 Point of Cut off, High Pressure half Low Pressure half

Diameter of Screw shaft 11 1/2" Diameter of Tunnel shaft 10 3/4" Diameter of Crank shaft journals 11 1/2" Diameter of Crank pin 11 1/2" size of Crank webs 15 x 7 1/2"

Diameter of screw 15-0" Pitch of screw 16-6" No. of blades 4 state whether moveable no total surface 574 Sq feet

No. of Feed pumps 2 diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work yes

Where do they pump from Fore hold, 1, Engine space, 4, Well in tunnel, 1, Well in hold, 1,

No. of Donkey Engines 2 Size of Pumps 8" x 10" & 4" x 10" Where do they pump from Fore hold, 2, Main tank, 2, Off tank, 3, Sea

Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes

No. of bilge injections 1 and sizes 6" Are they connected to condenser, or to circulating pump no

How are the pumps worked Lever over Condenser

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 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 — How are they protected —

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes

When were stern tube, propeller, screw shaft, and all connections examined in dry dock new

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Top platform of Engine room

## BOILERS, &c.—

Number of Boilers Two Description Cylindrical return tubes, "Steel Boilers"

Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test 3<sup>d</sup> March 1881

Description of superheating apparatus or steam chest Cylindrical between boilers fore & aft

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately —

No. of square feet of fire grate surface in each boiler 48 3/4 Description of safety valves Spring

No. to each boiler Two area of each valve 12.56" Are they fitted with easing gear yes

No. of safety valves to superheater — area of each valve — are they fitted with easing gear —

Smallest distance between boilers and bunkers or woodwork 30 inches

Diameter of boilers 13-6" Length of boilers 10-6" description of riveting of shell long. seams Double Strap circum. seams Double Caps

Thickness of shell plates 13/16" diameter of rivet holes 1 1/4" whether punched or drilled drilled pitch of rivets 4 1/8"

Kind of plating Strops 10 1/2% per centage of strength of longitudinal joint 70% working pressure of shell by rules 91 lbs

Size of manholes in shell 15" x 12" size of compensating rings 6" x 3 1/2"

No. of Furnaces in each boiler 3 outside diameter 40" length, top 6-6" bottom 9-6"

Thickness of plates 35/64" description of joint Butt Straps if rings are fitted half greatest length between rings 2-6"

Working pressure of furnace by the rules 90 lbs

Combustion chamber plating, thickness, sides 17/32" back 35/64" Side furnaces. On the furnace top 14/32" 9/16"

Thickness of stays to ditto 8 1/2" back 9 3/4" top Semicircle

Are stays fitted with nuts or riveted heads nuts working pressure of plating by rules 90 lbs

Diameter of stays at smallest part 1 1/2" working pressure of ditto by rules 125 lbs

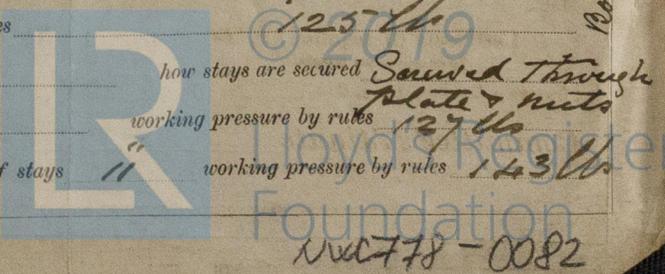
Thickness of plates in steam space, thickness 3/4" pitch of stays to ditto 15" how stays are secured Sawed through plates & nuts

Working pressure by rules 100 diameter of stays at smallest part 2 1/4" working pressure by rules 127 lbs

Thickness of plates at bottom, thickness 3/4" Back plates, thickness 3/4" greatest pitch of stays 11" working pressure by rules 143 lbs

Report recd. 18/6/81 sent to Gov. 24/7/81

Boiler drawing now forwarded



WVA778-0082

Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $5$ " thickness of tube plates, front  $\frac{13}{16}$ " back  $\frac{13}{16}$ "  
 How stayed *Tubes* pitch of stays  $15$ " width of water spaces  $10$ "  
 Diameter of Superheater or Steam chest  $5-6$  length  $7-6$   
 Thickness of plates  $\frac{1}{2}$ " description of longitudinal joint *Double Lap* diameter of rivet holes  $\frac{3}{4}$ " pitch of rivets  $2\frac{1}{2}$ "  
 Working pressure of shell by rules  $100$  lbs Diameter of flue  $\text{---}$  thickness of plates  $\text{---}$   
 If stiffened with rings  $\text{---}$  distance between rings  $\text{---}$  Working pressure by rules  $\text{---}$   
 End plates of superheater or steam chest; thickness  $1\frac{1}{2}$ " How stayed *4 Stays 3\frac{1}{2}" diameter*  
 Superheater or steam chest; how connected to boiler *Stop valves & pipes*  
**DONKEY BOILER**— Description *Cylindrical vertical over tubes in furnace*  
 Made at *Stockton* By whom made *Riley Brothers* when made *1881* Tested *13-5-81*  
 Where fixed *Stockton* working pressure  $80$  lbs Tested by hydraulic pressure to  $160$  lbs No. of Certificate *526*  
 Fire grate area  $22\text{ sq ft}$  Description of safety valves *Springs* No. of safety valves *one* area of each  $9.6$  sq"  
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*  
 Diameter of donkey boiler  $6-0$ " length  $13-6$ " description of riveting *long double lap*  
 thickness of shell plates  $\frac{17}{32}$ " diameter of rivet holes  $\frac{13}{16}$ " whether punched or drilled *punched*  
 pitch of rivets  $2\frac{3}{4}$ " lap of plating  $4\frac{1}{4}$ " per centage of strength of joint  $70\%$   
 thickness of crown plates  $\frac{17}{32}$ " stayed by *Six stays 1\frac{1}{2}" diam*  
 Diameter of furnace, top  $5-0$ " bottom  $5-5$ " length of furnace  $5-2$ "  
 thickness of plates  $\frac{5}{8}$ " description of joint *Single Lap*  
 thickness of furnace crown plates  $\frac{19}{32}$ " stayed by *Six stays 1\frac{1}{2}" diam*  
 Working pressure of shell by rules  $80$  lbs working pressure of furnace by rules  $80$  lbs  
 diameter of uptake  $15\frac{1}{2}$ " thickness of plates  $\frac{7}{16}$ " thickness of water tubes  $\frac{3}{8}$ "

The foregoing is a correct description,  
*Thos Clark & Co* Manufacturers

**General Remarks** (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been <sup>Specialy</sup> surveyed during construction. The materials and workmanship are sound and satisfactory, and eligible in my opinion to have the notation  $\times$  R Lloyd M.C. in the Societys Register books

It is submitted that this vessel is eligible to be classified  $\times$  Lloyd M.C. 6/81. This also submitted by the balance of fees are paid and that the record of the Register Book also deferred for this purpose. C.R. 24/7/81

The amount of Entry Fee  $\text{---}$  £ 3 : - : - received by me, *See Letter annexed*  
 Special  $\text{---}$  £ 32 : 10 : - *W.G.S.*  
 Certificate (if required)  $\text{---}$  - : - : - *14 July 1881*  
 To be sent as per margin.

(Travelling Expenses, if any, £  $\text{---}$ )

Committee's Minute

*27 July 1881*  
*+ Lloyd M.C.*

*John Brockat*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
*North Shields*