

# REPORT ON MACHINERY.

28001

No. 343

(Received in London Office)

No. in Survey held at Newcastle Date, first Survey 26<sup>th</sup> May Last Survey 30<sup>th</sup> August 1880  
 Reg. Book. 3 on the S.S. T. E. Forster Tons 522  
 Master W. Robson Built at North Shields When built 1866  
 Engines made at Newcastle By whom made R. & T. Hawthorn when made 1873  
 Boilers made at " By whom made " when made 1880  
 Registered Horse Power 90 H.P. Owners J. O. Scott Port belonging to Newcastle

**ENGINES, &c.—**

Description of Engines Inverted compound directacting surface Condensing  
 Diameter of Cylinders 25" & 49" Length of Stroke 30" No. of Rev. per minute 60 Point of Cut off, High Pressure .6 Low Pressure .6  
 Diameter of Screw shaft 8 1/2" Diameter of Tunnel shaft 7 3/4" Diameter of Crank shaft journals 8" Diameter of Crank pin 8" size of Crank webs 9 1/2" x 5 1/2"  
 Diameter of screw 11" 0 Pitch of screw 12" 0 No. of blades 4 state whether moveable no total surface 40 ft  
 No. of Feed pumps 2 diameter of ditto 4" Stroke 15" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 diameter of ditto 4 1/2" Stroke 12" Can one be overhauled while the other is at work Yes  
 Where do they pump from After peak Forehold and Engine Room  
 No. of Donkey Engines 2 Size of Pumps 3 1/2" & 7" Where do they pump from after peak Forehold  
Main hold Sea and Engine Room  
 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 one and sizes 4" Are they connected to condenser, or to circulating pump Circulating pump  
 How are the pumps worked From levers on both engines  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Three Kingston valves  
 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 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 August 1880  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Engine Room top platform

**BOILERS, &c.—**

Number of Boilers one Description Cylindrical tubular (Steel)  
 Working Pressure 75 lbs Tested by hydraulic pressure to 150 lbs Date of test 28-7-80-110432  
 Description of superheating apparatus or steam chest Cylindrical dome  
 Can each boiler be worked separately — Can the superheater be shut off and the boiler worked separately no  
 No. of square feet of fire grate surface in each boiler 49.5 Description of safety valves Spring  
 No. to each boiler 2 area of each valve 12.5 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 9"  
 Diameter of boilers 13" 0 Length of boilers 10" 6 description of riveting of shell long. seams Strip circum. seams Double Lap  
 Thickness of shell plates 1 1/8" diameter of rivet holes 1" whether punched or drilled Drilled pitch of rivets 1 1/4" C3  
 Lap of plating 1 8/8" C5 per centage of strength of longitudinal joint 75% working pressure of shell by rules 76 lbs  
 Size of manholes in shell 12" x 18" size of compensating rings 24" x 30"  
 No. of Furnaces in each boiler 3 outside diameter 37 length, top 6 3/4 ft bottom 9 ft  
 Thickness of plates 2 1/32" description of joint Butt strap if rings are fitted — greatest length between rings —  
 Working pressure of furnace by the rules 75 lbs  
 Combustion chamber plating, thickness, sides 7/16" back 15/32" top 15/32"  
 Pitch of stays to ditto 9" x 9" sides 9" x 9" back 9 1/2" x 9 1/2" top Circular  
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 75 lbs  
 Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 106 lbs  
 End plates in steam space, thickness 2 1/32" pitch of stays to ditto 14 1/2" x 14 1/2" how stays are secured Nuts & washers  
 Working pressure by rules 84 lbs diameter of stays at smallest part 1 3/8" working pressure by rules 105 lbs  
 Front plates at bottom, thickness 7/16" Back plates, thickness 7/16" greatest pitch of stays 12" working pressure by rules 75 lbs

Report recd 13/10/80 sent to Lon 20/10/80

28007 Iron

Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $4\frac{3}{4}$ " thickness of tube plates, front  $3\frac{1}{2}$ " back  $5\frac{1}{8}$ "  
 How stayed *Tubes* pitch of stays  $15 \times 14\frac{1}{2}$ " width of water spaces  $11\frac{1}{2}$ "  
 Diameter of Superheater or Steam chest  $4\text{ ft}$  length  $8\text{ ft}$   
 Thickness of plates  $\frac{3}{8}$ " description of longitudinal joint *Double Lap* diameter of rivet holes  $\frac{3}{4}$ " pitch of rivets  $1\frac{1}{16}$ "  
 Working pressure of shell by rules  $95\text{ lbs}$  Diameter of flue — thickness of plates —  
 If stiffened with rings — distance between rings — Working pressure by rules —  
 End plates of superheater, or steam chest; thickness  $\frac{5}{8}$ " How stayed *3 stays 1\frac{1}{2} dia & dished to 3" & 9" dia*  
 Superheater or steam chest; how connected to boiler *Contracted neck*

DONKEY BOILER—

Description  
 Made at — By whom made — when made —  
 Where fixed — working pressure — Tested by hydraulic pressure to — No. of Certificate —  
 Fire grate area — Description of safety valves — No. of safety valves — area of each —  
 If fitted with easing gear — If steam from main boilers can enter the donkey boiler —  
 Diameter of donkey boiler — length — description of riveting —  
 thickness of shell plates — diameter of rivet holes — whether punched or drilled —  
 pitch of rivets — lap of plating — per centage of strength of joint —  
 thickness of crown plates — stayed by —  
 Diameter of furnace, top — bottom — length of furnace —  
 thickness of plates — description of joint —  
 thickness of furnace crown plates — stayed by —  
 Working pressure of shell by rules — working pressure of furnace by rules —  
 diameter of uptake — thickness of plates — thickness of water tubes —

The foregoing is a correct description,  
*R. W. Hawthorn* Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The vessel was placed in Dry Dock and all sea cocks overhauled, those on flat of bottom removed up to turn of bilge, New end put on propeller shaft, propeller refitted and new lignum vitae put in stern bush, Crankshaft examined and lined up, all pumps overhauled and glands rebushed where found worn, Cylinders, pistons and valves overhauled, and Condenser tubes drawn cleaned and tested: Main boiler supplied and fixed on board by Messrs R. W. Hawthorn and spring safety valves fitted to same and set to 75 lbs pressure. The sluice valves on Engine Room Bulkheads made accessible, and on all being completed the machinery was tried under steam and found all in order. The old winch boiler has been taken out, and will be replaced by a new one when the vessel returns.*

*The machinery of this vessel is now in good order and safe working condition and eligible in my opinion to have the ratification Lloyd's M. C. Recorded in the Society's Register Book*

The amount of Entry Fee £ 2 : - : - received by me,  
 Special .. £ 4 : 4 : -  
 Certificate (if required) .. £ - : - : - <sup>18th</sup> Oct 1880  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ - )

*It is submitted that this vessel is eligible to have the ratification Lloyd's M. C. No 80 recorded.*  
*Thomas Wilson*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute Friday, October 22nd 1880

*Lloyd's M. C. 8-80*  
*NB 80*