

# REPORT ON MACHINERY.

No. 13871.

Port of Greenock.

1<sup>st</sup> Sheet.

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No. in Survey held at Greenock. Date, first Survey 4<sup>th</sup> May 1903. Last Survey 21<sup>st</sup> March 1904.  
 Reg. Book. on the Screw Steamer "Highland Watch." (Number of Visits 95)  
 Master Built at Port Glasgow. By whom built Russell & Co. Tons { Gross  
 Net  
 When built 1904  
 Engines made at Greenock By whom made Rankin & Blackmore. when made 1904  
 Boilers made at Greenock By whom made Rankin & Blackmore. when made 1904  
 Registered Horse Power \_\_\_\_\_ Owners \_\_\_\_\_ Port belonging to Liverpool  
 Nom. Horse Power as per Section 28 640. Is Refrigerating Machinery fitted Yes. Is Electric Light fitted Yes.

**ENGINES, &c.**—Description of Engines Triplic expansion. No. of Cylinders Three. No. of Cranks Three.  
 Dia. of Cylinders 28"-44"-48". Length of Stroke 54". Revs. per minute 66. Dia. of Screw shaft as per rule 16". Material of screw shaft Iron.  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes. Is the after end of the liner made water tight in the propeller boss Yes. If the liner is in more than one length are the joints burned Burned. If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive — If two liners are fitted, is the shaft lapped or protected between the liners \_\_\_\_\_ Length of stern bush 5'6 1/2".  
 Dia. of Tunnel shaft as per rule 14 1/8". Dia. of Crank shaft journals as per rule 15 3/8" 5/4. Dia. of Crank pin 15 3/4". Size of Crank webs 10 1/2" x 2 1/4". Dia. of thrust shaft under collars 15 1/4". Dia. of screw 18 1/2". Pitch of screw 19'0". No. of blades 4. State whether moveable Yes. Total surface 92 sq. ft.  
 No. of Feed pumps 2. Diameter of ditto 6 1/2". Stroke 10". Can one be overhauled while the other is at work Yes.  
 No. of Bilge pumps 2. Diameter of ditto 4 1/2". Stroke 11". Can one be overhauled while the other is at work Yes.  
 No. of Donkey Engines 2. Sizes of Pumps 6 1/2" x 6". Ballast 9 x 15" x 10". No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Three: 3 1/2" dia. In Holds, &c. No. 1 Hold: 2-3 1/2" dia. No. 2 Hold: 2-3 1/2" dia.  
 No. of bilge injections 1. sizes 6 1/4". Connected to condenser, or to circulating pump C. P. 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 —  
 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  
 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 Hold Suctions. How are they protected By Casings.  
 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 ken vessel. Is the screw shaft tunnel watertight Yes.  
 Is it fitted with a watertight door Yes. worked from upper platform in Engine Room.

**BOILERS, &c.**— (Letter for record \$.) Total Heating Surface of Boilers 4830 sq. ft. Is forced draft fitted Yes.  
 No. and Description of Boilers Auxiliary & Main Boilers: Cylindrical & Shell Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs.  
 Particulars of Main Boilers. Date of test 22/1/04. Can each boiler be worked separately Yes. Area of fire grate in each boiler 56 sq. ft. No. and Description of safety valves to each boiler 2: Direct Spring. Area of each valve 9.62 sq. in. Pressure to which they are adjusted 205 lbs. Are they fitted with easing gear Yes.  
 Smallest distance between boilers or uptakes and bunkers or woodwork About 24". Mean dia. of boilers 15'0". Length 12'0". Material of shell plates Steel.  
 Thickness 1 1/2". Range of tensile strength 29-325. Are they welded or flanged No. Descrip. of riveting: cir. seams Ends: small. middle: Butt. long. seams Double Butt Straps.  
 Diameter of rivet holes in long. seams 1 1/2". Pitch of rivets 9 3/4". 4 1/2". Lap of plates or width of butt straps 2 1/2".  
 Per centages of strength of longitudinal joint rivets 91.5. plate 84.7. Working pressure of shell by rules 228 lbs. Size of manhole in shell 16" x 12".  
 Size of compensating ring 33" x 24" x 1 1/2". No. and Description of Furnaces in each boiler 2: Dighton's. Material Steel. Outside diameter 48 1/4".  
 Length of plain part top 4'10". bottom 4'10". Thickness of plates crown 2 1/2". bottom 3 1/2". Description of longitudinal joint Weld. No. of strengthening rings None.  
 Working pressure of furnace by the rules 222 lbs. Combustion chamber plates: Material Steel. Thickness: Sides 1 1/2". Back 1 1/2". Top 5/8". Bottom 3/4".  
 Pitch of stays to ditto: Sides 7/16" x 7/16". Back 7/16" x 7/16". Top 8" x 8". If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 205 lbs.  
 Material of stays Steel. Diameter at smallest part 1 3/8". Area supported by each stay 59 sq. in. Working pressure by rules 200 lbs. End plates in steam space:  
 Material Steel. Thickness 1 1/2". Pitch of stays 15" x 15 3/8". How are stays secured Double Nuts. Working pressure by rules 200 lbs. Material of stays Steel.  
 Diameter at smallest part 2 5/8". Area supported by each stay 231 sq. in. Working pressure by rules 230 lbs. Material of Front plates at bottom Steel.  
 Thickness 7/8". Material of Lower back plate Steel. Thickness 7/8". Greatest pitch of stays 12 1/2". Working pressure of plate by rules 211 lbs.  
 Diameter of tubes 2 1/2". Pitch of tubes 3 1/16" x 3 1/16". Material of tube plates Steel. Thickness: Front 13/16". Back 3/4". Mean pitch of stays 7 3/8".  
 Pitch across wide water spaces 13". Working pressures by rules Front 316 lbs. Back 370 lbs. Girders to Chamber tops: Material Steel. Depth and thickness of girder at centre 11" x 1 1/2". Length as per rule 28.7". Distance apart 8". Number and pitch of Stays in each 3: 8".  
 Working pressure by rules 378 lbs. Superheater or Steam chest; how connected to boiler None. 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 \_\_\_\_\_

