

# REPORT ON MACHINERY.

No. 15901

Received at London Office

Date of writing Report 19 When landed in at Local Office 23<sup>rd</sup> Sept. 1910 Port of Greenock.  
 No. in Survey held at Greenock Date, First Survey 22<sup>nd</sup> Dec. 1909 Last Survey 22<sup>nd</sup> Sept. 1910  
 Reg. Book. on the SCREW STEAMER "HIGHLAND GLEN." (Number of Visits 11.)  
 Master Built at Port Glasgow. By whom built Russell & Co. Tons Gross 7343 Net 4616 When built 1910  
 Engines made at Greenock By whom made Rankin & Blackmore when made 1910  
 Boilers made at Greenock By whom made Rankin & Blackmore when made 1910  
 Registered Horse Power Owners Nelson Line (London) div<sup>2</sup> Port belonging to London  
 Nom. Horse Power as per Section 28 837. Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.

**ENGINES, &c.**—Description of Engines Triple expansion No. of Cylinders Three No. of Cranks Three  
 Dia. of Cylinders 31" - 51" - 86" Length of Stroke 54" Revs. per minute 78 Dia. of Screw shaft as per rule 17.16" Material of screw shaft Steel  
 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 - 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 42"  
 Dia. of Tunnel shaft as per rule 16.03" Dia. of Crank shaft journals as per rule 16.83" Dia. of Crank pin 17.8" Size of Crank webs 11" x 29" Dia. of thrust shaft under collars 17.8" Dia. of screw 19.0" Pitch of Screw 19.6" No. of Blades 4 State whether moveable Yes Total surface 124 Sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 12" Stroke 26" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4.5" Stroke 32" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Four Sizes of Pumps 2 1/2" 3" 4" 5" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 2 STOKHOLD. No. 1. 3 1/2" dia. In Holds, &c. NO. 1 HOLD. No. 2. 3 1/2" dia. NO. 2 HOLD. No. 3. 3 1/2" dia. NO. 3 HOLD. No. 4. 3 1/2" dia. CROSS BUNKER. No. 5. 3 1/2" dia. NO. 4 HOLD. No. 6. 3 1/2" dia. NO. 5 HOLD. No. 7. 3 1/2" dia. TUNNEL WELL. No. 8. 2 1/2" dia.  
 No. of Bilge Injections 1 sizes 9 1/2" Connected to condenser, or to circulating pump centrifugal pump. 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 Below.  
 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 Cased in.  
 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.  
 Dates of examination of completion of fitting of Sea Connections 2/7/10 of Stern Tube 2/7/10 Screw shaft and Propeller 2/7/10  
 Is the Screw Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes. worked from Upper platform.

**BOILERS, &c.**—(Letter for record \$ ) Manufacturers of Steel S. Colville & Sons  
 Total Heating Surface of Boilers 9864 sq. ft. Is Forced Draft fitted Yes. No. and Description of Boilers 2 cylindrical Multi Single end.  
 Working Pressure 210 lbs Tested by hydraulic pressure to 420 lbs Date of test 2/7/10 No. of Certificate 946.  
 Can each boiler be worked separately Yes. Area of fire grate in each boiler 75 sq. ft. No. and Description of Safety Valves to each boiler 2 Direct Spring loaded. Area of each valve 12.56 sq. in. Pressure to which they are adjusted 215 lbs. Are they fitted with easing gear Yes.  
 Smallest distance between boilers or uptakes and bunkers or woodwork 14" Mean dia. of boilers 16' 6" Length 12' 0" Material of shell plates Steel.  
 Thickness 1 1/2" Range of tensile strength 30 1/2 to 33 tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Lap Double and Triple riveted.  
 long. seams 2 1/2" Butt straps. Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 10" 5" Lap of plates or width of butt straps 1' 11 1/2".  
 Per centages of strength of longitudinal joint rivets 91.4% plate 83.4% Working pressure of shell by rules 228 lbs. Size of manhole in shell 16" x 12".  
 Size of compensating ring 31 1/2" x 27 1/2" x 1 1/2" No. and Description of Furnaces in each boiler 4 Morrison's Material Steel Outside diameter 44 1/4".  
 Length of plain part top 4' 10 1/2" Thickness of plates crown 5" Description of longitudinal joint Weld. No. of strengthening rings None.  
 Working pressure of furnace by the rules 228 lbs. Combustion chamber plates: Material Steel. Thickness: Sides 5" Back 5" Top 16" Bottom 16".  
 Pitch of stays to ditto: Sides 3/4" x 8" Back 3/4" x 8" Top 10 1/2" x 6" If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 215 lbs.  
 Material of stays Steel. Diameter at smallest part 1 1/2" Area supported by each stay 63" Working pressure by rules 227 lbs. End plates in steam space:  
 Material Steel Thickness 1 1/2" Pitch of stays 14" x 18" How are stays secured Double nuts Working pressure by rules 208 lbs. Material of stays Steel  
 Diameter at smallest part 3" Area supported by each stay 306" Working pressure by rules 247 lbs. Material of Front plates at bottom Steel  
 Thickness 3/8" Material of Lower back plate Steel Thickness 3/8" Greatest pitch of stays 15 1/2" Working pressure of plate by rules 208 lbs.  
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/8" x 3 3/8" Material of tube plates Steel Thickness: Front 13" 21" Back 16" Mean pitch of stays 8".  
 Pitch across wide water spaces 13 1/4" Working pressures by rules 282 lbs. 370 lbs. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 11 1/2" x 1 1/2". Length as per rule 34 1/2" Distance apart 10 1/2" Number and pitch of stays in each 4: 6".  
 Working pressure by rules 245 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



W680-0010

