

# REPORT ON MACHINERY.

No. 27286  
WED. 23 DEC 1908

Received at London Office

Date of writing Report Dec 14<sup>th</sup> 1908 When handed in at Local Office 19/12/ 1908 Port of Glasgow.  
 No. in Survey held at Reg. Book. 5.5 "AGNES ELLEN" Date, First Survey 1st Sept. 1908 Last Survey Dec 11<sup>th</sup> 1908  
 on the Master Built at Bowling By whom built Scott & Sons No 212. When built 1908.  
 Engines made at Glasgow. By whom made Ross & Duncan. No 1216 when made 1908.  
 Boilers made at Glasgow. By whom made Ross & Duncan No 1225. when made 1908.  
 Registered Horse Power Owners James Henry Mackay (Preston) Sta Port belonging to Liverpool  
 Nom. Horse Power as per Section 28 44. Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No.

**ENGINES, &c.—Description of Engines** Compound ✓ No. of Cylinders 2 No. of Cranks 2  
 Dia. of Cylinders 14" x 36" Length of Stroke 24 Revs. per minute 114 Dia. of Screw shaft as per rule 4 1/2" 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 ✓ 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 2'-4"  
 Dia. of Tunnel shaft as per rule 4 1/2" Dia. of Crank shaft journals as per rule 4 1/2" Dia. of Crank pin 4 1/2" Size of Crank webs 5 x 14" Dia. of thrust shaft under collars 4 1/2" Dia. of screw 8-0" Pitch of Screw 11-0 No. of Blades 4 State whether moveable Yes Total surface 22 sq ft  
 No. of Feed pumps 2 Diameter of ditto 2 3/4" Stroke 12" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 2 3/4" Stroke 12" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines One Sizes of Pumps 6 x 4 x 6 duplex No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room One 2 1/2", two 2" including donkey engine In Holds, &c. Two 2" - & 1-2" Expector suction  
 No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size One 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 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 Hold suction How are they protected Wood 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 ✓  
 Dates of examination of completion of fitting of Sea Connections 23-11-08 of Stern Tube 23-11-08 Screw shaft and Propeller 23-11-08.  
 Is the Screw Shaft Tunnel watertight ✓ Is it fitted with a watertight door worked from ✓

**BOILERS, &c.—(Letter for record &c.)** Manufacturers of Steel David Colville & Sons  
 Total Heating Surface of Boilers 14885 Is Forced Draft fitted No No. and Description of Boilers One single ended ✓  
 Working Pressure 135 lbs Tested by hydraulic pressure to 240 Date of test 23-11-08 No. of Certificate 9620  
 Can each boiler be worked separately ✓ Area of fire grate in each boiler 49.4 sq ft No. and Description of Safety Valves to each boiler Pair spring loaded Area of each valve 6.49 Pressure to which they are adjusted 140 lbs Are they fitted with easing gear Yes ✓  
 Smallest distance between boilers or uptakes and bunkers or woodwork 3'-0" Mean dia. of boilers 13'-0" Length 10'-0" Material of shell plates steel  
 Thickness 2 3/32" Range of tensile strength 28-32 lbs Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R. ✓  
 long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1" Pitch of rivets 6 1/4" Lap of plates or width of butt straps 15 3/4" ✓  
 Per centages of strength of longitudinal joint rivets 88.6 plate 84 Working pressure of shell by rules 135 lbs Size of manhole in shell 12" x 16" ✓  
 Size of compensating ring 6 3/4" x 2 1/2" No. and Description of Furnaces in each boiler 3 plain Material steel Outside diameter 41" ✓  
 Length of plain part top 4 1/2" bottom 3 1/2" Thickness of plates crown 3 5/8" Description of longitudinal joint welded ✓ No. of strengthening rings One ✓  
 Working pressure of furnace by the rules 136 lbs Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 9/16" ✓  
 Pitch of stays to ditto: Sides 9 1/2" x 8" Back 9 1/2" x 8" Top 9 1/2" x 8" If stays are fitted with nuts or riveted heads Nuts. ✓ Working pressure by rules 141 lbs ✓  
 Material of stays steel Area at smallest part 1.48 Area supported by each stay 46 sq" Working pressure by rules 155 End plates in steam space: ✓  
 Material Steel Thickness 1 5/16" Pitch of stays 18 1/4" x 16" How are stays secured D.N.W. ✓ Working pressure by rules 135 lbs Material of stays steel ✓  
 Diameter at smallest part 3.98 Area supported by each stay 30.4 sq in Working pressure by rules 135 lbs Material of Front plates at bottom steel ✓  
 Thickness 2 3/32" Material of Lower back plate steel Thickness 2 3/32" Greatest pitch of stays 13" x 9" Working pressure of plate by rules 142 lbs ✓  
 Diameter of tubes 3 1/2" Pitch of tubes 4 7/8" x 4 3/4" Material of tube plates steel Thickness: Front 2 3/32" Back 2 3/32" Mean pitch of stays 11 3/4" ✓  
 Pitch across wide water spaces 14 Working pressures by rules 135 lbs Girders to Chamber tops: Material Iron ✓ Depth and thickness of girder at centre 6 1/2" x 2" Length as per rule 30 2 3/32" Distance apart 8" Number and pitch of stays in each 2 @ 9 1/2" ✓  
 Working pressure by rules 145 lbs 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 ✓

**VERTICAL DONKEY BOILER** — Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_

Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied: — 2 Crk Rod top end bolts & nuts, 2 Crk Rod bottom end bolts & nuts, 2 Main Bearing Bolts, 1 set Cranking bolts, 1 set feed & large pump valves, 1 set Propeller blades, Quantity of assorted bolts, nuts, & iron.

The foregoing is a correct description,  
*Ross & Duncan* Manufacturer.

Dates of Survey while building { During progress of work in shops - - } 1908. *Apr. 1. 7. 21. 22. 29. Oct. 5. 12. 15. 20. 21. 28. Nov. 3. 6. 11. 12. 13. 19. 23. 26. 30.*  
 { During erection on board vessel - - } *Dec. 2. 5. 7. 11.*  
 Total No. of visits *25.*

Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders *12-10-08* Slides *12-10-08* Covers *20-10-08* Pistons *28-10-08* Rods *5-10-08*  
 Connecting rods *12-10-08* Crank shaft *5-10-08* Thrust shaft *28-10-08* Tunnel shafts *✓* Screw shaft *13-11-08* Propeller *13-11-08*  
 Stern tube *13-11-08* Steam pipes tested *2-12-08* Engine and boiler seatings *23-11-08* Engines holding down bolts *2-12-08*  
 Completion of pumping arrangements *2-12-08* Boilers fixed *30-11-08* Engines tried under steam *11-12-08*  
 Main boiler safety valves adjusted *3-12-08* Thickness of adjusting washers *Both 1/4"*  
 Material of Crank shaft *Iron* Identification Mark on Do. *446* Material of Thrust shaft *Iron* Identification Mark on Do. *446*  
 Material of Tunnel shafts *✓* Identification Marks on Do. *✓* Material of Screw shafts *Iron* Identification Marks on Do. *776*  
 Material of Steam Pipes *Copper* Test pressure *240 lbs.*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The Machinery of this vessel has been built under special survey, the materials and workmanship are of good quality and have been securely fitted on board, and satisfactorily tried under full steam pressure. The Machinery of this vessel is in my opinion eligible to be classed and have record + L.M.C. 12-08 in Register Book.*

*Plr. Request No. 19 attached.*

*It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 12.08.*

*J.P.R. 24-12-08*  
*H.E.D. 24/12/08.*

The amount of Entry Fee £ 1 : 0 0 :  
 Special £ 11 : 11 0 :  
 Donkey Boiler Fee £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, *18/12/1908*  
 When received, *22/12/1908*

*William G. Butler*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **GLASGOW** 22 DEC 1908

Assigned **+ L.M.C. 12.08. GLASGOW**

MACHINERY CERTIFICATE  
 WRITTEN 23-12-08



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Certificate (if required) to be sent to Glasgow. (The Surveyors are requested not to write on or below the space for Committee's Minute.)