

## REPORT ON MACHINERY.

No. 16283

WED. JUL. 10. 1912

Received at London Office

Date of writing Report 29 June 1912 When handed in at Local Office 2/7/1912 Port of Greenock

No. in Survey held at Greenock Date, First Survey 25<sup>th</sup> July 1911 Last Survey 1<sup>st</sup> July 1912  
Reg. Book. on the S.S. AGNES DUNCAN. (Number of Visits 8)

Master Built at Port Glasgow By whom built R. Duncan &amp; Co. Ltd. When built 1912

Engines made at Greenock By whom made John G. Kinnaird &amp; Co. Ltd. when made 1912.

Boilers made at Greenock By whom made John G. Kinnaird &amp; Co. Ltd. when made 1912.

Registered Horse Power Owners Port belonging to

Nom. Horse Power as per Section 28 263 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

## ENGINES, &amp;c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 22"-36"-59" Length of Stroke 39" Revs. per minute 75 Dia. of Screw shaft as per rule 12" as fitted 12" 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 on length 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 14' 0 1/2"

Dia. of Tunnel shaft as per rule 10' 8 1/4" as fitted none Dia. of Crank shaft journals as per rule 11 1/4" as fitted 11 1/2" Dia. of Crank pin 1 1/2" Size of Crank webs 1 1/4" x 1/2" Dia. of thrust shaft under collars 1 1/2" Dia. of screw 14' 6" Pitch of Screw 15' 6" No. of Blades 4 State whether moveable No Total surface 70 sq. ft.

No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 22" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 22" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Four Sizes of Pumps 8" x 9" x 10" 8" x 5" x 8" 5" x 3" x 5" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room One: 3 1/2" dia. In Holds, &amp;c. main Hold 2-3 1/2" dia.

Bunker well 1-3 1/2" dia.

No. of Bilge Injections 1 sizes 6 1/2" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room &amp; 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 Bottle

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 Awaish

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 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 14/5/12 of Stern Tube 14/5/12 Screw shaft and Propeller 14/5/12

Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door worked from

## BOILERS, &amp;c.—(Letter for record &amp; Manufacturers of Steel L. Duncan &amp; Co. Ltd.)

Total Heating Surface of Boilers 4428 sq. ft. Is Forced Draft fitted No No. and Description of Boilers 2: Cylindrical built Single

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 3/5/12 No. of Certificate 1052

Can each boiler be worked separately Yes Area of fire grate in each boiler 63 sq. ft. No. and Description of Safety Valves to

each boiler 2: Direct Spring Area of each valve 4.06 sq. in. Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork about 14" Mean dia. of boilers 15' 0" Length 11' 0" Material of shell plates Steel

Thickness 1 3/8" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap Double

long. seams 1/4" butt straps Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/2" 4 1/2" Lap of plates or width of butt straps 18 1/2"

Per centages of strength of longitudinal joint rivets 87.6 plate 85.3 Working pressure of shell by rules 182 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 33 1/4" x 28 1/4" x 1 1/2" No. and Description of Furnaces in each boiler 3: Daightons Material Steel Outside diameter 48 1/4"

Length of plain part top 2 1/2" bottom 2 1/2" Thickness of plates crown 3/16" bottom 1/8" Description of longitudinal joint Weld No. of strengthening rings None

Working pressure of furnace by the rules 183 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/32" Back 21" Top 19" Bottom 3/4"

Pitch of stays to ditto: Sides 1/2" x 8 1/4" Back 9" x 8 1/4" Top 9" x 4 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lbs

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 65 sq. in. Working pressure by rules 181 lbs End plates in steam space:

Material Steel Thickness 1 3/8" Pitch of stays 18" x 20" How are stays secured Washers Working pressure by rules 184 lbs Material of stays Steel

Diameter at smallest part 2 1/8" Area supported by each stay 360 sq. in. Working pressure by rules 183 lbs Material of Front plates at bottom Steel

Thickness 1 5/8" Material of Lower back plate Steel Thickness 5/8" Greatest pitch of stays 13 1/4" x 8 3/4" Working pressure of plate by rules 202 lbs

Diameter of tubes 3 1/4" Pitch of tubes 14 3/8" x 14 1/2" Material of tube plates Steel Thickness: Front 5/16" Back 3/4" Mean pitch of stays 10' 3"

Pitch across wide water spaces 13 1/4" Working pressures by rules 180 lbs 189 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 9" x 15 1/8" Length as per rule 32.1" Distance apart 9" Number and pitch of stays in each 5: 1/2"

Working pressure by rules 222 lbs Superheater or Steam chest; how connected to boiler through the pipes Can the superheater be shut off and the boiler worked

separately Yes 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 7.06 sq. in. Are they fitted with easing gear Yes



# VERTICAL DONKEY BOILER— Manufacturers of Steel.

No. one Description Cochran patent  
 Made at Aman By whom made Cochran 1609 Aman When made 1911 Where fixed on vessel  
 Working pressure 100 tested by hydraulic pressure to 200 Date of test 20/10/ No. of Certificate 11249 Fire grate area 148 Description of Safety  
 Valves Direct Spring No. of Safety Valves 1 Area of each 408 Pressure to which they are adjusted 105 Date of adjustment 25/6/11  
 If fitted with easing gear Yes If steam from main boilers can enter the donkey boiler No 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 \_\_\_\_\_  
 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 \_\_\_\_\_ Radius of do. \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— 2 main Bearing Bolts, 2 Crank pin Bolt nuts, 2 Crank  
 Bolt nuts, 2 let Coupling Bolt nuts, 1 set Feed pump valves, 1 set Bilge pump  
 valves, 13 Jack Ring Bolts, 6 Boiler tubes, 12 Condenser tubes, 1 set Escape valve spring  
 1 safety valve spring 3 Bar Round Iron 3 Bar flat Iron 50 Bolt nuts assorted sizes &c.

The foregoing is a correct description,  
John Y. Kneaid & Co Ltd Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1911 July 25 Aug. 3-16-22-24 Sept. 2-6-13-15-18-24-26 Oct. 2-5-9-12-17-20-23-26 Nov. 1-7-9-11-14-17-21-24-26 Dec. 1-5-6-12-15-19-26-27 1912 Jan 6-9-12-16-25-28-31 Feb. 2-3-12-14-19-22-23 Mar. 4-6-7-11-14-21-23-29 Apr. 3-9-18-22-25-28-29 May 3-8-10-14 June 3-6-13-17-18-20-25-28-29 July 1.  
 During erection on board vessel --  
 Total No. of visits 81 Is the approved plan of main boiler forwarded herewith Yes  
 " " " donkey " " " Yes

Dates of Examination of principal parts—Cylinders 12/1/12 Slides 18/4/12 Covers 12/1/12 Pistons 16/1/12 Rods 31/1/12  
 Connecting rods 18/4/12 Crank shaft 16/1/12 Thrust shaft 31/1/12 Tunnel shafts None Screw shaft 29/3/12 Propeller 3/4/11  
 Stern tube 27/3/12 Steam pipes tested See Report Engine and boiler seatings 13/6/12 Engines holding down bolts 16/1/12  
 Completion of pumping arrangements 13/6/12 Boilers fixed 13/6/12 Engines tried under steam 1/7/12  
 Main boiler safety valves adjusted 28/6/12 Thickness of adjusting washers Port: 3 1/2 SV 3 1/2 Starb: 5 SV 4 1/2 FV 5 1/2  
 Material of Crank shaft Steel Identification Mark on Do. 1103 Material of Thrust shaft Steel Identification Mark on Do. 1104  
 Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts ✓ Identification Marks on Do. 1105  
 Material of Steam Pipes Steel Test pressure 600 lb.

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

The owners have fitted a McPhail & Simpson steam superheater in the uptake  
 The inlet and outlet boxes (into which the best heating tubes are expanded)  
 are connected to the main steam pipe range and can be shut off or con-  
 at pleasure Thus steam may be taken to the Engines direct from the Boiler  
 or through the superheater as desired. The superheater has been tested in the  
 presence to 150 lb per sq inch and was found tight. The safety valve is adjusted to blow  
 188 lb per sq inch. At the trial of the Engines the superheater was not working and  
 Builders state that it will not be used for the superheating of steam until the  
 time guarantee on the machinery expires.

The Boilers and machinery are of the usual type and were built under  
 special survey. They have been examined under steam and found to work well  
 throughout. They are now in good and efficient condition and eligible in my opinion  
 to have the record of **\*LMC. 7.12.** marked in the Society's Register Book.

It is submitted that  
 this vessel is eligible for  
**THE RECORD. + LMC 7.12**

The amount of Entry Fee .. £ 2 : : :  
 Special .. £ 33 : 3 : :  
 Donkey Boiler Fee .. £ : : :  
 Travelling Expenses (if any) £ : : :  
 When applied for, 2/3/12  
 When received, 5/3/12

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute

GLASGOW

9-JUL 1912

Assigned

+ LMC 7.12



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