

REPORT ON MACHINERY

No. 28153.

WFT 6 OCT 1909

Date of writing Report 29th Sept 1909 When handed in at Local Office 29th Sept 1909 Port of Glasgow
No. in Survey held at Groon Date, First Survey 6th April 1909 Last Survey 25th Sept 1909
Reg. Book. 17 on the Laverock (Number of Visits 30) Gross 1199.39
Master H. C. Ferris Built at Groon By whom built Aitca S B C La Tons Net 263.77
Engines made at Groon By whom made Aitca S B C La When built 1909
Boilers made at Groon By whom made Dunsmuir & Jackson La when made 1909
Registered Horse Power 251 Owners General Steam Navigation Co La Port belonging to London
Nom. Horse Power as per Section 28 251 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks 3
Dia. of Cylinders 22", 35" & 59" Length of Stroke 39 Revs. per minute 86 Dia. of Screw shaft 11 3/4" Material of 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 Red lead If two
liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 66"
Dia. of Tunnel shaft None Dia. of Crank shaft journals 11 1/2" Dia. of Crank pin 11 1/8" Size of Crank webs 20x7" Dia. of thrust shaft under
collars 11 1/8" Dia. of screw 13-9" Pitch of Screw 16-6" No. of Blades 4 State whether moveable No Total surface 59 sq ft
No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 19 1/2" Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 19 1/2" Can one be overhauled while the other is at work Yes
No. of Donkey Engines Three Sizes of Pumps 8x6, 8x4, 6x4, 7x7 1/2, 15" No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room One 4", Two 2 1/4" and one 2 1/2" In Holds, &c. Two 2 1/4" in No. 1 and 2 holds

No. of Bilge Injections 1 sizes 5 1/2" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size Yes, 2 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 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 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 5/8/09 of Stern Tube 6-12/8/09 Screw shaft and Propeller 12/8/09
Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record S) Manufacturers of Steel As per attached report on Boilers
Total Heating Surface of Boilers 4180 Is Forced Draft fitted No No. and Description of Boilers Two Single Ended
Working Pressure 170 lb per sq in Tested by hydraulic pressure to 200 lb per sq in Date of test 12/8/09 No. of Certificate 12/8/09
Can each boiler be worked separately Yes Area of fire grate in each boiler 58 1/4 sq ft No. and Description of Safety Valves to
each boiler No direct spring Area of each valve 5.94 sq in Pressure to which they are adjusted 175 lb per sq in Are they fitted with easing gear Yes
Smallest distance between boilers or uptakes and bunkers or woodwork Stokehold Mean dia. of boilers 36" Length 12' Material of shell plate ✓
Thickness 3/8" Range of tensile strength 30,000 Are the shell plates welded or flanged ✓ Descrip. of riveting: cir. seams
long. seams ✓ Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 4" Lap of plates or width of butt strap 1"
Per centages of strength of longitudinal joint 85% Working pressure of shell by rules 175 lb per sq in Size of manhole in shell 18"
Size of compensating ring 18" No. and Description of Furnaces in each boiler Two Material Iron Outside diameter 36"
Length of plain part 12' Thickness of plates 3/8" Description of longitudinal joint Butt No. of strengthening rings 2
Working pressure of furnace by the rules 175 lb per sq in Combustion chamber plates: Material Iron Thickness: Sides 3/8" Back 3/8" Top 3/8" Bottom 3/8"
Pitch of stays to ditto: Sides 4" Back 4" Top 4" If stays are fitted with nuts or riveted heads ✓ Working pressure by rules 175 lb per sq in
Material of stays Iron Diameter at smallest part 1 1/2" Area supported by each stay 1.5 sq ft Working pressure by rules 175 lb per sq in End plates in steam space:
Material Iron Thickness 3/8" Pitch of stays 4" How are stays secured By nuts Working pressure by rules 175 lb per sq in Material of stays Iron
Diameter at smallest part 1 1/2" Area supported by each stay 1.5 sq ft Working pressure by rules 175 lb per sq in Material of Front plates at bottom Iron
Thickness 3/8" Material of Lower back plate Iron Thickness 3/8" Greatest pitch of stays 4" Working pressure of plate by rules 175 lb per sq in
Diameter of tubes 2" Pitch of tubes 12" Material of tube plates Iron Thickness: Front 3/8" Back 3/8" Mean pitch of stays 4"
Pitch across wide water spaces 12" Working pressures by rules 175 lb per sq in Girders to Chamber tops: Material Iron Depth and
thickness of girder at centre 12" Length as per rule 12' Distance apart 12" Number and pitch of stays in each 2, 4"
Working pressure by rules 175 lb per sq in Superheater or Steam chest; how connected to boiler By pipe Can the superheater be shut off and the boiler worked
separately Yes Diameter 12" Length 12' Thickness of shell plates 3/8" Material Iron Description of longitudinal joint Butt Diam. of rivet
holes 1 1/8" Pitch of rivets 4" Working pressure of shell by rules 175 lb per sq in Diameter of flue 12" Material of flue plates Iron Thickness 3/8"
If stiffened with rings Yes Distance between rings 12" Working pressure by rules 175 lb per sq in End plates: Thickness 3/8" How stayed By stays
Working pressure of end plates 175 lb per sq in Area of safety valves to superheater 1.5 sq ft Are they fitted with easing gear Yes

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. *One* Description *Vertical as per attached Middlesbrough report No 5901*
 Made at *Stockton* By whom made *Riley Bros Ltd* When made *1909* Where fixed *on main deck*
 Working pressure *80 lb* tested by hydraulic pressure to *100 lb* Date of test *23/9/09* No. of Certificate *2874* Fire grate area *28 1/4* Description of Safety
 Valves *Direct Spring* No. of Safety Valves *2* Area of each *6.940* Pressure to which they are adjusted *85 lb* Date of adjustment *23/9/09*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *30* Length *10*
 Material of shell plates *Steel* Thickness *3/16* Range of tensile strength *30* Descrip. of riveting long. seams *30*
 Dia. of rivet holes *1/4* Whether punched or drilled *Yes* Pitch of rivets *1 1/2* Lap of plating *1 1/2* Per centage of strength of joint *100*
 Working pressure of shell by rules *80 lb* Thickness of shell crown plates *3/16* Radius of do. *30* No. of stays to do. *10* Dia. of stays *1 1/2*
 Diameter of furnace Top *30* Bottom *30* Length of furnace *10* Thickness of furnace plates *3/16* Description of joint *30*
 Working pressure of furnace by rules *80 lb* Thickness of furnace crown plates *3/16* Stayed by *30*
 Diameter of uptake *30* Thickness of uptake plates *3/16* Thickness of water tubes *3/16* Dates of survey *23/9/09*

SPARE GEAR.

State the articles supplied:

As required by the rules also, propeller and propeller shaft, set of crank pin bushes, guide shoe, valve spindle & nut, 2 eccentric straps, air pump rod & bucket condenser & boiler tubes etc.

The foregoing is a correct description,

FOR ALBA SHIPBUILDING CO., LIMITED

Wm. S. Watson. Manufacturer.

Dates of Survey while building
 During progress of work in shops - *1909. Apr. 6. 9. 12. 19. 23. 27. 30 May 5. 11. 14. 17. 18. 24. 27. 28. 31. June 2. 4. 7. 9. 11. 15. 17. 11*
 During erection on board vessel - *21. 23. 24. 25. 29. July 1. 2. 6. 7. 8. 13. 15. Aug 4. 6. 18. 19. 24. Sep 6. 9. 13. 15. 16. 20. 22. 23. 28.*
 Total No. of visits *50*

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

Dates of Examination of principal parts
 Cylinders *11/5, 17/5* Slides *19/4, 27/4* Covers *11/5, 14/5, 17/5* Pistons *25/5, 31/5* Rods *25/5, 31/5*
 Connecting rods *28/5, 31/5* Crank shaft *12/4, 19/4* Thrust shaft *11/5, 17/5* Tunnel shafts *11/5, 17/5* Screw shaft *11/5, 17/5* Propeller *25/5, 31/5*
 Stern tube *17/6, 23/6* Steam pipes tested *9/9/09* Engine and boiler seatings *24/8/09* Engines holding down bolts *6/9/09*
 Completion of pumping arrangements *13/9/09* Boilers fixed *6/9/09* Engines tried under steam *28/9/09*
 Main boiler safety valves adjusted *23/9/09* Thickness of adjusting washers *1/32, 1/16, 1/8, 1/4, 1/2, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6, 6 1/2, 7, 7 1/2, 8, 8 1/2, 9, 9 1/2, 10, 10 1/2, 11, 11 1/2, 12, 12 1/2, 13, 13 1/2, 14, 14 1/2, 15, 15 1/2, 16, 16 1/2, 17, 17 1/2, 18, 18 1/2, 19, 19 1/2, 20, 20 1/2, 21, 21 1/2, 22, 22 1/2, 23, 23 1/2, 24, 24 1/2, 25, 25 1/2, 26, 26 1/2, 27, 27 1/2, 28, 28 1/2, 29, 29 1/2, 30, 30 1/2, 31, 31 1/2, 32, 32 1/2, 33, 33 1/2, 34, 34 1/2, 35, 35 1/2, 36, 36 1/2, 37, 37 1/2, 38, 38 1/2, 39, 39 1/2, 40, 40 1/2, 41, 41 1/2, 42, 42 1/2, 43, 43 1/2, 44, 44 1/2, 45, 45 1/2, 46, 46 1/2, 47, 47 1/2, 48, 48 1/2, 49, 49 1/2, 50*
 Material of Crank shaft *Steel* Identification Mark on Do. *3079* Material of Thrust shaft *Steel* Identification Mark on Do. *3079*
 Material of Tunnel shafts *None* Identification Marks on Do. *✓* Material of Screw shafts *Iron* Identification Marks on Do. *3079*
 Material of Steam Pipes *Lap Weld Iron & Copper* Test pressure *Don 510 Copper 340 lb*

General Remarks

(State quality of workmanship, opinions as to class, &c)

The machinery of this vessel has been built under special survey, it & the boiler have been securely fitted on board and satisfactorily tested under full steam. Speed 12.4 Knots.

In my opinion the machinery of this vessel is now eligible for record of L.M.C. 9.09 (mixed) in register book.

four forging reports. main & donkey boiler plans & Middlesbrough report No 5901 now attached.

It is submitted that this vessel is eligible for THE RECORD. + LMC 9.09.

J.W.D. J.R.R. 8/10/09 6.10.09

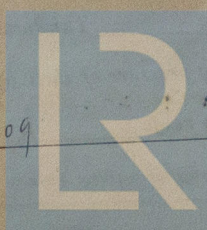
George Murdoch
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee .. £ *2 : 0*
 Special .. £ *32 11*
 Donkey Boiler Fee .. £ *4*
 Travelling Expenses (if any) £ *14 : 10*

When applied for, *2/10/09*
 When received, *29.10.09*
 5.OCT.1909

Committee's Minute *GLASCOW*
 Assigned *+ LMC 9.09*

MACHINERY CERTIFICATE WRITTEN 6.10.09



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GLASCOW

2.4.10-2.10.09