

# REPORT ON MACHINERY.

No. 15461

Port of Greenock

Received at London WED. 16 SEP 1908

No. in Survey held at Greenock

Date, first Survey 10<sup>th</sup> Jan'y 07 Last Survey 5<sup>th</sup> Sept 1908

Reg. Book.

134 on the SCREW STEAMER BANNOCKBURN

(Number of Visits 98)

Gross 4935.63

Net 3155.75

Master N. A. Willett Built at Port Glasgow By whom built Russell & Co

When built 1908

Engines made at Greenock By whom made Rankin & Blackmore when made 1908

Boilers made at Greenock By whom made Rankin & Blackmore when made 1908

Registered Horse Power \_\_\_\_\_ Owners R. Shankland & Co Port belonging to Greenock

Nom. Horse Power as per Section 28 471 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 Three

Dia. of Cylinders 27-44-73 Length of Stroke 48 Revs. per minute 41 Dia. of Screw shaft 14.89 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 Yes 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 64

Dia. of Tunnel shaft 13.3 as per rule 13.3 Dia. of Crank shaft journals 14 as per rule 14 Dia. of Crank pin 14 Size of Crank webs 9x18.8 Dia. of thrust shaft under

collars 14 Dia. of screw 18.5 Pitch of Screw 18.9 No. of Blades 4 State whether moveable No Total surface 110 Sq. ft.

No. of Feed pumps 1 Diameter of ditto 4 Stroke 26 Can one be overhauled while the other is at work Yes (Lamont's Feed pumps)

No. of Bilge pumps 2 Diameter of ditto 4.5 Stroke 26 Can one be overhauled while the other is at work Yes (8x6x8)

No. of Donkey Engines Three Sizes of Pumps 9x11x10 7x12x8 4x24x5 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three - 3.5 dia In Holds, &c. No. 1 Hold: Two - 3.5 dia. No. 2 Hold: Two - 3.5 dia

No. 3 Hold (Deep Tank): Two - 3.5 dia + Two - 6 dia. No. 4 Hold: Two - 3.5 dia. Tunnel Well: One - 2.5 dia.

No. of Bilge Injections 1 sizes 5.5 Connected to condenser, or to circulating pump C. P. Is a separate Donkey Suction fitted in Engine room of size Yes - 3.5

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 Yes

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 23/6/08 of Stern Tube 26/5/08 Screw shaft and Propeller 23/6/08

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 Steel Coy of Scotland & J. Dunlop & Co

Total Heating Surface of Boilers 6546 Is Forced Draft fitted Yes No. and Description of Boilers Two: Cylindrical: Single

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 24/6/08 No. of Certificate 899

Can each boiler be worked separately Yes Area of fire grate in each boiler 68 Sq. ft. No. and Description of Safety Valves to

each boiler Two: Spring loaded Area of each valve 12.56 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 12 Mean dia. of boilers 16.6 Length 12.0 Material of shell plates Steel

Thickness 1.56 Range of tensile strength 28.5 to 32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap Double

long. seams Overlapped Diameter of rivet holes in long. seams 1.38 Pitch of rivets 9.6 Lap of plates or width of butt straps 20.5

Per centages of strength of longitudinal joint rivets 86.8 Working pressure of shell by rules 182 lbs Size of manhole in shell 16 x 12

Size of compensating ring 33 x 27 x 1.76 No. and Description of Furnaces in each boiler 4: Dighton's Material Steel Outside diameter 44.4

Length of plain part 8.1 Thickness of plates 1.7 Description of longitudinal joint Weld No. of strengthening rings None

Working pressure of furnace by the rules 185 lbs Combustion chamber plates: Material Steel Thickness: Sides 5 Back 5 Top 5 Bottom 4

Pitch of stays to ditto: Sides 9.3 x 8 Back 9.3 x 7.4 Top 9.3 x 8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs

Material of stays Steel Diameter at smallest part 1.2 Area supported by each stay 74 Working pressure by rules 192 lbs End plates in steam space:

Material Steel Thickness 1.34 Pitch of stays 16.2 x 20.8 How are stays secured Overlapped Working pressure by rules 182 lbs Material of stays Steel

Diameter at smallest part 2.76 Area supported by each stay 341 Sq. in Working pressure by rules 184 lbs Material of Front plates at bottom Steel

Thickness 1.3 Material of Lower back plate Steel Thickness 1.3 Greatest pitch of stays 12.5 Working pressure of plate by rules 192 lbs

Diameter of tubes 2.2 Pitch of tubes 3.2 x 3.2 Material of tube plates Steel Thickness: Front 4 with 7/8 Back 3.4 Mean pitch of stays 9.3

Pitch across wide water spaces 13.4 Working pressures by rules 248 lbs 208 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 10 x 1.58 Length as per rule 35 Distance apart 9.4 Number and pitch of stays in each 3: 8

Working pressure by rules 184 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 \_\_\_\_\_

Lloyd's Register  
FOW 590-0207

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:— *one propeller and shaft. Packing Rings for H.P. & L.P. Pistons, one set cylinder escape valve springs, 12 Boiler tubes, 12 Condenser tubes, 1 set Air pump valves, one set Safety valve springs, 1 set Crank pin Bushes, 56 lbs White metal, 2 Crank pin Bolts, two Crosshead Bolts, 2 main Bearing Bolts, 6 Holding down bolts, 6 Joint Ring Bolts, 12 by 18" Cover Screws*

The foregoing is a correct description, *2 feed pump valves, 2 Bilge pump valves, Bolts & nuts assorted*

*R. Andrew Macdonald* Manufacturer.

Dates of Survey while building	During progress of work in shops—	1907. Jan 10, 24. Feb 18, 19, 22, 25. Mar 1, 9, 14, 21, 28. April 3, 5, 11, 15, 22, 26. May 3, 7, 13, 24, 28, 31. June 3, 7, 11, 14.
	During erection on board vessel—	18, 25. July 18, 24, 31. Aug 23, 27. Sep 3, 6. Oct 11, 14, 18, 23, 30. Nov 1, 30. Dec 2, 5, 11, 19, 20, 24, 26, 27, 31. 1908. Jan 9.
	Total No. of visits	21, 23, 28. Aug 4, 7, 10, 12, 17, 18, 21, 25, 31. Sep 5.

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

" " " donkey " " " *Yes*

Dates of Examination of principal parts—Cylinders *5/9/08*. Slides *12/3/08*. Covers *12/3/08*. Pistons *23/4/08*. Rods *22/4/08*. Connecting rods *17/2/08*. Crank shaft *22/4/08*. Thrust shaft *22/4/08*. Tunnel shafts *9/6/08*. Screw shaft *15/6/08*. Propeller *9/6/08*. Stern tube *4/5/08*. Steam pipes tested *23/4/08*. Engine and boiler seatings *16/6/08*. Engines holding down bolts *12/5/08*. Completion of pumping arrangements *21/8/08*. Boilers fixed *14/8/08*. Engines tried under steam *5/9/08*.

Main boiler safety valves adjusted *17/5/08*. Thickness of adjusting washers *PORT. P.V. 1 3/4" 5 1/2" STARB. P.V. 2 1/2" 5 1/2" SV 1/2" 5 1/2" full. BK 3/4" full. BK 3/4"*

Material of Crank shaft *Steel*. Identification Mark on Do. *1374*. Material of Thrust shaft *Steel*. Identification Mark on Do. *735*

Material of Tunnel shafts *Steel*. Identification Marks on Do. *737 & 743*. Material of Screw shafts *Steel + Iron*. Identification Marks on Do. *736-A*

Material of Steam Pipes *Copper 5 dia x 4 w. Seamless*. Test pressure *360 lbs*.

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

*The engines and Boilers of this vessel have been built under special survey and the materials and workmanship are good. When completed they were examined while running full power trials in the Firth and found to work well. The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of L.M.C. 9,08. marked in the Society's Register Book.*

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 9,08.

ELEC. LIGHT.

F.D.

17.9.08

*J.R.R.*  
17.9.08

The amount of Entry Fee..	£ 3 : . . .	When applied for,	
Special ..	£ 43 11 : . . .	When received,	
Donkey Boiler Fee ..	£ : : . . .		
Travelling Expenses (if any) £	: : . . .		

*Wm. R. Austin*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute GLASGOW 15 SEP. 1908

Assigned + L.M.C. 9,08.

b.B.6.

MACHINERY CERTIFICATE  
WRITTEN 16.9.08