

Received at London Office

Date of writing Report 2nd June 1917 When handed in at Local Office

Port of Newcastle on Tyne

No. in Survey held at Newcastle  
Reg. Book.

Date, First Survey 15 August 1917 Last Survey 15 August 1917

(Number of Vistas) 7 Gross 6544

on the S.S. "Blair Mackenzie"

Master Built at Newcastle By whom built Northumbrian &amp; Co. When built 1917

Engines made at Newcastle By whom made H. E. Mainie Eng Co. No. 2247 when made 1917

Boilers made at do By whom made do when made 1917

Registered Horse Power Owners Payne, Irvine &amp; Co. Ltd Port belonging to Glasgow

Nom. Horse Power as per Section 28 662 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

## ENGINES, &amp;c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 29" 49" 80" Length of Stroke 54" Revs. per minute 76 Dia. of Screw shaft as per rule 15.82" Material of 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 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 Yes Length of stern bush 5'-9"

Dia. of Tunnel shaft as per rule 14.65" Dia. of Crank shaft journals as per rule 15.38" Dia. of Crank pin 15 7/8" Size of Crank webs 32 1/4" x 9 3/4" Dia. of thrust shaft under

collars 15 7/8" Dia. of screw 18'-6" Pitch of Screw 18'-6" No. of Blades 4 State whether moveable Yes Total surface 100 sq

No. of Feed pumps 2 Weirs 12' x 9' x 21" Diameter of ditto 4 1/2" Stroke 27" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 5" Stroke 27" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 7 1/2" x 10 1/4" x 10" &amp; 9" x 6" x 10" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four 3 1/2" In Holds, &amp;c. Two in each hold 3 1/2" one in

Lunel Well 3", Two in deep tank 3 1/2"

No. of Bilge Injections 1 sizes 10 1/2" Connected to condenser, or to circulating pump Yes 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 None

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 Both

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 Yes

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 22-2-17 of Stern Tube 22-2-17 Screw shaft and Propeller 11-5-17

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

## BOILERS, &amp;c.—(Letter for record S) Manufacturers of Steel John Spence &amp; Sons

Total Heating Surface of Boilers 9837 sq Is Forced Draft fitted Yes No. and Description of Boilers Three, single-ended

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 2-1-5-17 No. of Certificates 2-8954

Can each boiler be worked separately Yes Area of fire grate in each boiler 78 sq No. and Description of Safety Valves to

each boiler Two, Spring Area of each valve 12.56 sq Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers and bunkers or woodwork 2 ft Mean dia. of boilers 17'-3 3/8" Length 12'-0" Material of shell plates Steel

Thickness 1 5/16 Range of tensile strength 29 3/4 - 33 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams &amp; Lap

long. seams 88.5 Y Riv Diameter of rivet holes in long. seams 1 11/32 Pitch of rivets 9 1/8" Lap of plates or width of butt straps 19 1/8"

Per centages of strength of longitudinal joint rivets 88.07 Working pressure of shell by rules 181 lbs Size of manhole in shell 16" x 12"

Size of compensating ring Flanged No. and Description of Furnaces in each boiler 4-Beightons Material Steel Outside diameter 46"

Length of plain part top Thickness of plates crown 9/16 Description of longitudinal joint Welded No. of strengthening rings

bottom Working pressure of furnace by the rules 191 lbs Combustion chamber plates: Material Steel Thickness: Sides 23/32 Back 23/32 Top 23/32 Bottom 1"

Pitch of stays to ditto: Sides 10 1/2" x 9 3/8" Back 10 1/2" x 9 3/8" Top 10 1/2" x 9 3/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lbs

Material of stays Steel Diameter at smallest part 2.03" Area supported by each stay 98.49" Working pressure by rules 185 lbs End plates in steam space

Material Steel Thickness 1 1/4" Pitch of stays 21 1/2" x 18 3/4" How are stays secured X &amp; W Working pressure by rules 182 lbs Material of stays Steel

Diameter at smallest part 7.07" Area supported by each stay 408" Working pressure by rules 182 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1 5/16 Greatest pitch of stays 14 1/2" Working pressure of plate by rules 189 lbs

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates Steel Thickness: Front 1" Back 13/16 Mean pitch of stays 7 1/2"

Pitch across wide water spaces 14 1/2" Working pressures by rules 182 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 9 1/4" x 1 3/4" Length as per rule 36" Distance apart 9 3/8" Number and pitch of stays in each 2-10 1/2"

Working pressure by rules 185 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

Hulton

Lloyd's Register  
WS150044



IS A DONKEY BOILER FITTED? no

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:— Two, top-end, two bottom-end & two main-bearing bolts & nuts, one set of coupling bolts, one set of feed & bilge pump valves, a quantity of assorted bolts nuts & iron, two propeller blades, a screw shaft, one pair bottom-end bushes, one pair top-end bushes & boiler tubes.

The foregoing is a correct description,

FOR THE NORTH EASTERN MARINE ENGINEERING CO. LD.

J. Harrison

Manufacturers

Dates of Survey while building  
During progress of work in shops -- Aug. 15-23, Sep. 4-6, 19-25, 26-28, 29, Oct. 3-6, 23-26, Nov. 2-9, 13-15, 27-29, 27, Dec. 12-13, 20-22, 27-29, 30  
During erection on board vessel -- Jan. 3-4, 11-16, 22-26, 30, Feb. 2-5, 6-8, 12-13, 15, 19-21, 22, Mar. 2-5, 6-7, 8-9, 12-14, 15-16, 21-26, 28-29, 30, Apr. 2-4, 5-11, 12-13, 17-19, 24, May, 2-4, 7-8, 11-21, 27, 29, 30, 31, June 1  
Total No. of visits 78

Is the approved plan of main boiler forwarded herewith yes

" " " donkey " " " ✓

Dates of Examination of principal parts—Cylinders 26-4-17 Slides 4-5-17 Covers 7-3-17 Pistons 2-11-16 Rods 7-3-17  
Connecting rods 7-3-17 Crank shaft 21-2-17 Thrust shaft 19-1-17 Tunnel shafts 17-4-17 Screw shaft 17-4-17 Propeller 4-5-17  
Stern tube 26-1-17 Steam pipes tested 31-5-17 Engine and boiler seatings 8-5-17 Engines holding down bolts 21-5-17  
Completion of pumping arrangements 30-5-17 Boilers fixed 21-5-17 Engines tried under steam 1-6-17  
Main boiler safety valves adjusted 1-6-17 Thickness of adjusting washers PB. F  $\frac{13}{32}$  A  $\frac{5}{16}$  SB. F  $\frac{13}{32}$  A  $\frac{3}{8}$  FB. F  $\frac{13}{32}$  A  $\frac{3}{8}$

Material of Crank shaft Steel Identification Mark on Do. LX 2-17 Material of Thrust shaft Steel Identification Mark on Do. LX 1-17

Material of Tunnel shafts Steel Identification Marks on Do. LX 4-17 Material of Screw shafts Steel Identification Marks on Do. LX 4-17

Material of Steam Pipes Steel ✓ Test pressure 540 lbs

Is an installation fitted for burning oil fuel no ✓ Is the flash point of the oil to be used over 150°F. ✓

Have the requirements of Section 49 of the Rules been complied with. ✓

Is this machinery duplicate of a previous case yes If so, state name of vessel "Clan Mackay"

General Remarks (State quality of workmanship, opinions as to class, &c. The engines & boilers of this vessel have been constructed under special survey & the materials & workmanship are found to be good. The engines have been tried under steam & the safety valves adjusted. The machinery is now in good & safe working condition & eligible in my opinion to have the notation of LMC 6-17.

A report on the electric installation will be forwarded when received from the Electricians

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC 6.17. E.D.

The amount of Entry Fee ... £ 3 : 0 : 0  
Special ... £ 53 : 2 : 0  
Donkey Boiler Fee ... £ ...  
Travelling Expenses (if any) £ ...

When applied for,  
28 JUN 1917

When received,  
29 JUN 1917

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

Committee's Minute

Assigned

Lm 6.17

F.D.

MACHINERY CERTIFICATE  
WRITTEN

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Foundation