

REPORT ON MACHINERY.

No. 64119
SAT. 30 APR 1910

Date of writing Report 29 APR 1910 When handed in at Local Office 29 APR 1910 Received at London Office
No. in Survey held at Birkenhead Date, First Survey 1910 Last Survey 19
Reg. Book. 13 on the S.S. Highland Laddie (Number of Visits 1)
Master Andrew Built at Birkenhead By whom built Cammell Laird & Co. Ltd. Tons { Gross 7117
Net 4486
Engines made at Birkenhead By whom made Cammell Laird & Co. Ltd. When built 1910
Boilers made at do By whom made do when made 1910
Registered Horse Power 855 Owners Nelson Line Ltd Port belonging to London
Nom. Horse Power as per Section 28 855 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Horizontal Triple No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 18 Length of Stroke 24 Revs. per minute 110 Dia. of Screw shaft 10 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 12
Dia. of Tunnel shaft 10 Dia. of Crank shaft journals 10 Dia. of Crank pin 10 Size of Crank webs 10 Dia. of thrust shaft under
collars 10 Dia. of screw 10 Pitch of Screw 10 No. of Blades 10 State whether moveable yes Total surface 10
No. of Feed pumps 10 Diameter of ditto 10 Stroke 10 Can one be overhauled while the other is at work yes
No. of Bilge pumps 10 Diameter of ditto 10 Stroke 10 Can one be overhauled while the other is at work yes
No. of Donkey Engines 10 Sizes of Pumps 10 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 10 In Holds, &c. 10

No. of Bilge Injections 10 sizes 10 Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size 10
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 yes
Are they fixed sufficiently high on the ship's side to be seen without lifting the stowhold plates yes Are the Discharge Pipes above or below the deep water line yes
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 10 How are they protected 10
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 10 of Stern Tube 10 Screw shaft and Propeller 10
Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from 10

BOILERS, &c.—(Letter for record (8)) Manufacturers of Steel H. Colville & Sons & Steel Co. of Scotland
Total Heating Surface of Boilers 3144 Is Forced Draft fitted no No. and Description of Boilers One Single ended Steel
Working Pressure 210 lb Tested by hydraulic pressure to 420 lb Date of test 13.10.09 No. of Certificate 1898
Can each boiler be worked separately yes Area of fire grate in each boiler 88 No. and Description of Safety Valves to
each boiler Two Spring Area of each valve 9.82 Pressure to which they are adjusted 210 lb Are they fitted with easing gear yes
Smallest distance between boilers or uptakes and bunkers or woodwork 12 Mean dia. of boilers 16.6 Length 12.0 Material of shell plates Steel
Thickness 1 3/8 Range of tensile strength 30.5-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Lap double
long. seams Butt Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 10 Lap of plates or width of butt straps 1 1/2
Per centages of strength of longitudinal joint 96.42 Working pressure of shell by rules 244 lb Size of manhole in shell 16x12
Size of compensating ring 8x1 1/2 No. and Description of Furnaces in each boiler 4 Division Material Steel Outside diameter 3.9
Length of plain part top Thickness of plates crown Description of longitudinal joint Butt No. of strengthening rings none
Working pressure of furnace by the rules 234.5 Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 1
Pitch of stays to ditto: Sides 7 1/2 x 8 1/2 Back 8 1/2 x 7 1/2 Top 8 1/2 x 7 1/2 If stays are fitted with nuts or riveted heads yes Working pressure by rules 210 lb
Material of stays Steel Diameter at smallest part 1.465 Area supported by each stay 63.75 Working pressure by rules 211.5 End plates in steam space:
Material Steel Thickness 1 3/8 Pitch of stays 16 1/2 x 16 1/2 How are stays secured By nuts Working pressure by rules 211 Material of stays Steel
Diameter at smallest part 2 1/8 Area supported by each stay 268 Working pressure by rules 257 Material of Front plates at bottom Steel
Thickness 1 Material of Lower back plate Steel Thickness 1 Greatest pitch of stays 14 1/2 Working pressure of plate by rules 233
Diameter of tubes 3 1/4 Pitch of tubes 4 3/8 Material of tube plates Steel Thickness: Front 1 1/8 Back 1 1/8 Mean pitch of stays 8 3/4
Pitch across wide water spaces 14 1/2 Working pressures by rules 213 Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 8 x 2 1/2 Length as per rule 2.8 3/4 Distance apart 8 Number and pitch of stays in each 4 7/8
Working pressure by rules 225 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked
separately yes Diameter 10 Length 10 Thickness of shell plates 10 Material 10 Description of longitudinal joint 10 Diam. of rivet
holes 10 Pitch of rivets 10 Working pressure of shell by rules 10 Diameter of flue 10 Material of flue plates 10 Thickness 10
If stiffened with rings 10 Distance between rings 10 Working pressure by rules 10 End plates: Thickness 10 How stayed 10
Working pressure of end plates 10 Area of safety valves to superheater 10 Are they fitted with easing gear 10

W490-0248

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:—

The foregoing is a correct description,

R.R. Bevington Manufacturer.

Dates of Survey while building _____ During progress of work in shops - - - _____ During erection on board vessel - - - _____

Total No. of visits _____

Is the approved plan of main boiler forwarded herewith _____

" " " donkey " " " _____

Dates of Examination of principal parts—Cylinders _____ Slides _____ Covers _____ Pistons _____ Rods _____

Connecting rods _____ Crank shaft _____ Thrust shaft _____ Tunnel shafts _____ Screw shaft _____ Propeller _____

Stern tube _____ Steam pipes tested _____ Engine and boiler seatings _____ Engines holding down bolts _____

Completion of pumping arrangements _____ Boilers fixed _____ Engines tried under steam _____

Main boiler safety valves adjusted *210 lbs* Thickness of adjusting washers *Port 7/16 Star 13/32*

Material of Crank shaft _____ Identification Mark on Do. _____ Material of Thrust shaft _____ Identification Mark on Do. _____

Material of Tunnel shafts _____ Identification Marks on Do. _____ Material of Screw shafts _____ Identification Marks on Do. _____

Material of Steam Pipes _____ Test pressure _____

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery has been specially surveyed during construction the material and workmanship good and under the best scrutiny in our opinion to have the Record & L.M.S. H-10 in the Register Book of the Society.*)

The amount of Entry Fee. £ *3. 0. 0* When applied for, *20 APR 1910*

Special £ *62. 15. 0* When received, *1. 6. 10*

Donkey Boiler Fee £ _____

Travelling Expenses (if any) £ _____

Committee's Minute *LIVERPOOL 20 APR 1910*

Assigned *See report attached.*

Richard Hirst & T.D. Philston
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



Date of writing _____
No. in Sur. Reg. Book. _____
on _____
Master _____
Engines made _____
Boilers made _____
Registered _____
Nom. Horse _____
ENGINES
Dia. of Cylinders _____
Is the screw _____
in the proper _____
between the _____
liners are fit _____
Dia. of Tunnel _____
collars _____
No. of Feed _____
No. of Bilge _____
No. of Donkey _____
In Engine Room _____
No. of Bilge _____
Are all the bilge _____
Are all connected _____
Are they fixed _____
Are they each _____
What pipes are _____
Are all Pipes _____
Are the Bilge _____
Dates of examination _____
Is the Screw _____
BOILERS
Total Heating _____
Working Pressure _____
Can each boiler _____
each boiler _____
Smallest diameter _____
Thickness _____
long. seams _____
Per centages _____
Size of components _____
Length of plates _____
Working pressure _____
Pitch of stays _____
Material of stays _____
Material of _____
Diameter at _____
Thickness _____
Diameter of _____
Pitch across _____
thickness of _____
Working pressure _____
separately _____
holes _____
If stiffened with _____
Working pressure _____

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