Rpt. 4.

REPORT ON MACHINERY.

No. 33960.

Received at London Office GLASGOW THU. MAY 21 1914

Date of writing Report 19 When handed in at Local Office 8. 5. 1914 Port of

No. in Reg. Book. Survey held at Paisley Windermere Bur 23/1/15 Date, First Survey 18. 3. 14 Last Survey 23 - 4 - 1914 Number of Visits 6. Bur 10 22/1/15 27-7-14

30 ... on the Hauling Engine designated No 919 fitted on wire rope driven Steam Ferry Vessel not named but will be known as Windermere Ferry Tons Gross Load displacement 41 tons Net Load 8 tons

Master ✓ Built at Glasgow By whom built Alley McLellan Ld (527) When built 1914

Engines made at Paisley By whom made Campbell & Calderwood Ld (919) when made 1914

Boilers made at Annan By whom made Cochran & Co Ld (6362) when made 1914

Registered Horse Power 19 I-H.P. at 200 Rev Owners W. Bruce Logan ~~Port belonging to~~ For Ferry Purposes on Lake Windermere not registered

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

ENGINES, &c.—Description of Engines Twin Cylinders No. of Cylinders 2 No. of Cranks 2

Dia. of Cylinders 6" & 6" Length of Stroke 6½" Revs. per minute ✓ Dia. of Screw shaft as per rule as fitted ✓ Material of screw shaft ✓

Is the screw shaft fitted with a continuous liner the whole length of the stern tube ✓ Is the after end of the liner made water tight in the propeller boss ✓ 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 ✓ If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush –

Dia. of Tunnel shaft as per rule as fitted ✓ Dia. of Crank shaft journals as per rule as fitted 2⅞ as approved on London letter 21/2/14. Dia. of Crank pin 2⅞ Size of Crank webs 3⅞ & 1½" Dia. of thrust shaft under collars ✓ Dia. of screw ✓ Pitch of Screw ✓ No. of Blades ✓ State whether moveable ✓ Total surface ✓

No. of Feed pumps Two Injectors Diameter of ditto ½" Stroke ✓ Can one be overhauled while the other is at work Yes

No. of Bilge pumps one ejector Diameter of ditto 1½" Stroke ✓ Can one be overhauled while the other is at work Yes

No. of Donkey Engines one rotary hand pump Sizes of Pumps see Pumping Plan approved 25.5.14 ejector hand No. and size of Suctions connected to both ~~Bilge~~ and Donkey pumps

In Engine Room one 1½" in each of the five ~~In Holds, &c.~~ compartments

No. of Bilge Injections ✓ sizes ✓ Connected to condenser, or to circulating pump ✓ Is a separate Donkey Suction fitted in Engine room & size ✓

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 Cocks

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 deck

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel – 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 29. 9. 14 of Stern Tube ✓ Screw shaft and Propeller ✓

Is the Screw Shaft Tunnel watertight ✓ Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record) Manufacturers of Steel See Gls Rpt No 33903

Total Heating Surface of Boilers 80 ☐' Is Forced Draft fitted No No. and Description of Boilers one Cochran Patent (Gls Rpt No 33903)

Working Pressure 100 Tested by hydraulic pressure to 200 Date of test 21. 4. 14 No. of Certificate 12668.

Can each boiler be worked separately ✓ Area of fire grate in each boiler 5.75 ☐' No. and Description of Safety Valves to each boiler 1 Spring loaded Area of each valve 4.9" Pressure to which they are adjusted 90 lb at owners request Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 4 - 0" Mean dia. of boilers Length Material of shell plates

Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Per centages of strength of longitudinal joint rivets plate Working pressure of shell by rules Size of manhole in shell

Size of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter

Length of plain part top bottom Thickness of plates crown bottom Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space: Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

Working pressure by rules Superheater or Steam chest; how connected to boiler 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

W1624-0113

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* *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 :—

None supplied

The foregoing is a correct description,

Manufacturer. Campbell & Calderwood

Dates of Survey while building	During progress of work in shops - -	1914 Mar 18. 26. Apr 2. 10. 15. 23.
	During erection on board vessel - - -	July 27. Aug 26. 27 Sept 10. 29 Nov 21 Dec 28 1915 Jan 2. 5. 22.
	Total No. of visits	6. Brw 10

Is the approved plan of main boiler forwarded herewith

" " " *donkey* " " "

Dates of Examination of principal parts—*Cylinders* 18.3.14 *Slides* 26.3.14 *Covers* 26.3.14 *Pistons* 10.4.14 *Rods* 10.4.14

Connecting rods 15.4.14 *Crank shaft* 15.4.14 *Thrust shaft* ✓ *Tunnel shafts* ✓ *Screw shaft* ✓ *Propeller* ✓

Stern tube ✓ *Steam pipes tested* 28.12.14 *Engine and boiler seatings* 28.12.14 *Engines holding down bolts* 28.12.14

Completion of pumping arrangements 28/12/14 *Boilers fixed* 28.12.14 *Engines tried under steam* 28.12.14. 5.1.15

Main boiler safety valves adjusted 28.12.14 *Thickness of adjusting washers* 5/8"

Material of Crank shaft S *Identification Mark on Do.* LLOYDS W.G.M. 919 *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 Copper *Test pressure* 200 lb

General Remarks (*State quality of workmanship, opinions as to class, &c.*) This Engine has been built under Special Survey & the workmanship & material are of good quality
This Engine is being shipped to Ferry Nab Lake Windermere at which place it will be fitted on board. The Surveyors at Barrow have been advised. The Owner of the Vessel is W Bruce Logan Esq. New Ferry Hotel Windermere & the Engines will be fitted by Messrs Alley McLellan Ld. at Ferry Nab.
This Engine is used for hauling the Vessel from one side of the Lake to the other

The Engines described above and the boiler described on Gls Rpt No 33903 have now been fitted to this wire rope driven Steam Ferry, in accordance with the approved P.T.O

Certificate (if required) to be sent to GLASGOW

(The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee	£ 1 :	When applied for,	
Special	£ 3 . 4 :	11/5/7 1914	
Donkey Boiler Fee (Barrow a/c)	£ 2 . 14 :	When received,	
Travelling Expenses (if any)	£ :	27/5 1914 at Glasgow	

Wm. Gordon Mackin
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute GLASGOW 20 MAY 1914 FRI. JAN. 29. 1915

Assigned Deferred for compln + LMC 1.15

Rpt. 9a.

Port of Barrow in Furness Continuation of G l s Report No. 33960 dated 25th May 1914 on the

Machinery of the Windermere Ferry
Plans, tried and found to work Satisfactorily and are
now in good order and Safe working Condition eligible
in my Opinion to have record of + NE & B 14

Approved Plans are forwarded herewith
(1) General arrangement of engines (2) Boiler also G l s
Rpt No 33903 on boiler.

Jas Eastthope.