

REPORT ON MACHINERY.

No. 31118
WED. FEB. 21. 1912

Date of writing Report 16-2-12 When handed in at Local Office 17-2-12 Port of Glasgow.
No. in Survey held at Glasgow. Date, First Survey 21st Feb. 1911. Last Survey 16-2-1912.
Reg. Book. New on the S.S. "Mc ELWAIN" (Number of Visits 47)
Master W. A. Inness Built at Workington By whom built R. Williamson & Son (1728) Tons Gross 810.8 Net 358.3
Engines made at Glasgow By whom made Ross & Duncan (N^o 846) when made 1912
Boilers made at Glasgow By whom made Ross & Duncan (N^o 1350-1) when made 1911.
Registered Horse Power Owners Maritime Provinces S.S. Co. Port belonging to Glasgow.
Nom. Horse Power as per Section 28 114. Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Exp. Surf. Cond? No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 15-25 1/2-41 Length of Stroke 30 Revs. per minute 84 Dia. of Screw shaft 8 1/4 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 Yes Length of stern bush 2'-11"
Dia. of Tunnel shaft as per rule 2'-4 1/2 Dia. of Crank shaft journals as per rule 4 1/8 Dia. of Crank pin 4 1/8 Size of Crank webs 11 1/2 x 5 1/2 Dia. of thrust shaft under
collars 4 1/8 Dia. of screw 11'-0" Pitch of Screw 13'-10 1/2 No. of Blades 4 State whether moveable No Total surface 46.6 sq. ft.
No. of Feed pumps 2 Diameter of ditto 2 1/2 Stroke 15 Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 3 Stroke 15 Can one be overhauled while the other is at work Yes
No. of Donkey Engines 3 Sizes of Pumps 6x4x6 Feed GENERAL BALLAST & BILGE and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 2-2 1/4 & 1-2 1/2 8 special 3x2x3 DONKEY FEED In Holds, &c. 2-2 Forward.

No. of Bilge Injections 1 sizes 3 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 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 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 Tank & hold suction How are they protected Wood casings
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 See Workington Report of Stern Tube 24-4-11 Screw shaft and Propeller See Workington Report
Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door Machine worked from aft Plate: The Steel Company of Scotland Ltd (Blackburn) Base: The Lanarkshire Steel Company

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Plate: The Steel Company of Scotland Ltd (Blackburn) Base: The Lanarkshire Steel Company
Total Heating Surface of Boilers 2048 sq. ft. Is Forced Draft fitted No No. and Description of Boilers One S.E. Marine
Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs. Date of test 11-8-1911 No. of Certificate 11152
Can each boiler be worked separately Yes Area of fire grate in each boiler 58.5 sq. ft. No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 6.49 sq. in. Pressure to which they are adjusted 165 lbs. Are they fitted with easing gear Yes
Smallest distance between boilers or uptakes and bunkers or woodwork 9" INS. Mean dia. of boilers 14-3 1/8 Length 10'-6" Material of shell plates Steel
Thickness 1 1/16 Range of tensile strength 28/32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R. long. seams T.R. D.B.S. Diameter of rivet holes in long. seams 1 1/16 Pitch of rivets 4 1/8 Lap of plates or width of butt straps 15 5/8
Per centages of strength of longitudinal joint rivets 85 Working pressure of shell by rules 162 lbs. Size of manhole in shell 16 x 12
Size of compensating ring 4' x 1 1/16 No. and Description of Furnaces in each boiler 3 plain Material Steel Outside diameter 3'-8"
Length of plain part top 6'-6" Thickness of plates crown 3/4 Description of longitudinal joint welded No. of strengthening rings One bottom 6'-4 1/2 Thickness of plates bottom 3/4
Working pressure of furnace by the rules 164 lbs. Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 5/8
Pitch of stays to ditto: Sides 9 1/2 x 8 1/2 Back 9 x 9 Top 9 x 9 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 162 lbs.
Material of stays Steel Diameter at smallest part 1 1/4 Area supported by each stay 83 1/4 Working pressure by rules 169 lbs. End plates in steam space:
Material Steel Thickness 1 1/8 Pitch of stays 20 1/4 x 14 1/4 How are stays secured D.N.R.W. Working pressure by rules 160 lbs. Material of stays Steel
Diameter at smallest part 5.94 Area supported by each stay 368 Working pressure by rules 164 lbs. Material of Front plates at bottom Steel
Thickness 3/4 Material of Lower back plate Steel Thickness 13/16 Greatest pitch of stays 13 3/4 x 9 Working pressure of plate by rules 169 lbs.
Diameter of tubes 3 1/2 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates Steel Thickness: Front 3/4 Back 23/32 Mean pitch of stays 10 1/2
Pitch across wide water spaces 14 Working pressures by rules 168 lbs. Girders to Chamber tops: Material iron Depth and thickness of girder at centre 7 x 2 1/4 Length as per rule 2'-5 1/8 Distance apart 9 1/2 Number and pitch of stays in each 2 at 9°
Working pressure by rules 145 lbs. Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked separately Yes 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

W968-0064

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. *30315* Description *Vertical Donkey Boiler*
 Made at *Glasgow* By whom made *Ross & Duncan* When made *1912* Where fixed *On board*
 Working pressure *150 lbs* tested by hydraulic pressure to *200 lbs* Date of test *1912* No. of Certificate *1912* Fire grate area *15 sq ft* Description of Safety
 Valves *1* No. of Safety Valves *1* Area of each *15 sq ft* Pressure to which they are adjusted *150 lbs* Date of adjustment *1912*
 If fitted with easing gear *No* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *18 in* Length *4 ft 6 in*
 Material of shell plates *Steel* Thickness *1/2 in* Range of tensile strength *36 tons* Descrip. of riveting long. seams *Double*
 Dia. of rivet holes *1/2 in* Whether punched or drilled *Punched* Pitch of rivets *2 in* Lap of plating *1 in* Per centage of strength of joint *85* Rivets *100*
 Working pressure of shell by rules *150 lbs* Thickness of shell crown plates *1/2 in* Radius of do. *18 in* No. of stays to do. *1* Dia. of stays *1 in*
 Diameter of furnace Top *18 in* Bottom *18 in* Length of furnace *4 ft 6 in* Thickness of furnace plates *1/2 in* Description of joint *Double*
 Working pressure of furnace by rules *150 lbs* Thickness of furnace crown plates *1/2 in* Radius of do. *18 in* Stayed by *1*
 Diameter of uptake *18 in* Thickness of uptake plates *1/2 in* Thickness of water tubes *1/2 in* Dates of survey *1912*

SPARE GEAR. State the articles supplied:—*2 top end bolts & nuts, 2 bottom end bolts & nuts, 2 main bearing bolts, 1 set coupling bolts, 1 set feed & bridge pump valves, 1 set piston springs, 1 set air & circ. pump valve, 1 spare propeller, 1 spare propeller shaft, valves for ballast & feed donkeys, spare feed and donkey check valves, 1 safety valve spring, condenser tube, firebars, assorted bolts & nuts*

The foregoing is a correct description,

Ross & Duncan Manufacturer.

Dates of Survey while building *1911. Feb 21. Mar 10. 13. 20. 28. Apr 3. 4. 13. 25. May 1. 12. 17. 22. 29. 30. June 1. 5. 6. 7. 13. 29.*
 During erection on board vessel *July 3. 12. 27. Aug 3. 11. 21. Sep 5. 13. 15. 29. 1912. Jan 20. 22. 25. 29. 30 Feb 5. 7. 9. 12. 13.*
 Total No. of visits *41*

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

Dates of Examination of principal parts—Cylinders *12-5-11* Slides *24-4-11* Covers *12-5-11* Pistons *12-4-11* Rods *12-5-11*
 Connecting rods *12-5-11* Crank shaft *14-5-11* Thrust shaft *5-9-11* Tunnel shafts *None* Screw shaft *working 15-9-11* Propeller *13-9-11*
 Stern tube *24-4-11* Steam pipes tested *4-2-12* Engine and boiler seatings *22-1-12* Engines holding down bolts *5-2-12*
 Completion of pumping arrangements *9-2-12* Boilers fixed *5-2-12* Engines tried under steam *13-2-12*
 Main boiler safety valves adjusted *12-2-12* Thickness of adjusting washers *both 1/32*
 Material of Crank shaft *Iron* Identification Mark on Do. *4590AF* Material of Thrust shaft *Iron* Identification Mark on Do. *224 W.A. H*
 Material of Tunnel shafts *None* Identification Marks on Do. *✓* Material of Screw shafts *Iron* Identification Marks on Do. *224 W.A. H*
 Material of Steam Pipes *Copper* Test pressure *320 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The materials and workmanship are good. The machinery and boilers of this vessel have been constructed under special survey in accordance with the rules and approved plans, satisfactorily fitted on board and tried under steam.*

The machinery is, in my opinion, eligible for classification and to have received L.M.C. 2.12.

It is submitted that this vessel is eligible for THE RECORD + LMC 2.12.

The amount of Entry Fee .. £ *2-0-0* When applied for, *1912*
 Special .. £ *14-2-0*
 Donkey Boiler Fee .. £ *1*
 Travelling Expenses (if any) £ *1* When received, *1912*

Committee's Minute *GLASGOW 2 FEB 1912*

Assigned *+ LMC 2.12. subject to classification of hull.*

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

FRI. FEB. 23. 1912

+ LMC 2.12

MAINTENANCE CERTIFICATE

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