

REPORT ON MACHINERY.

No. 30962

Received at London Office

THU, JAN 4 - 1912

Date of writing Report 28-12-1911 When handed in at Local Office 19 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 20th March 1911 Last Survey 23-12-1911
 Reg. Book. New on the S/S "ENDA" (Number of Visits 20)
 Master Built at Dublin By whom built Dublin Dockyard Co. No. 14 Tons } Gross 842
 Engines made at Glasgow By whom made Ross & Duncan (No. 872) when made 1911 Net 396
 Boilers made at Glasgow By whom made Ross & Duncan (No. 1345) when made 1911 When built 1911
 Registered Horse Power 130 Owners Michael Murphy Ltd. Port belonging to Cardiff
 Nom. Horse Power as per Section 28 130 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted Yls.

ENGINES, &c.—Description of Engines Compound No. of Cylinders 2 No. of Cranks 2
 Dia. of Cylinders 22" x 46" Length of Stroke 30" Revs. per minute 102 Dia. of Screw shaft as per rule 9.75 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 ✓ 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 3' 5 1/2"
 Dia. of Tunnel shaft as per rule none Dia. of Crank shaft journals as per rule 9.48" Dia. of Crank pin 10" Size of Crank webs 18 1/2 x 6 1/2" Dia. of thrust shaft under collars 9 1/8" Dia. of screw 11-3" Pitch of Screw 13-3" No. of Blades 4 State whether moveable yes Total surface 46 1/2 sq ft
 No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 15" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 15" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps 6 x 4 1/2 x 6 Duplex feed No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room one 2 1/4", one 2 3/4" & one 2 1/4" special In Holds, &c. two 2"
 No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump 6 P. Is a separate Donkey Suction fitted in Engine room & size yes 2 1/4"
 Are all the bilge suction pipes fitted with roses Yls. Are the roses in Engine room always accessible Yls. 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 See Dublin Rpt.
 What pipes are carried through the bunkers forward pipes How are they protected wood casing
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yls.
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yls.
 Dates of examination of completion of fitting of Sea Connections and of Stern Tube and Screw shaft and Propeller See Dublin Report
 Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door machinery lift worked from

BOILERS, &c.—(Letter for record (S)) Manufacturers of Steel David Colville & Sons & Lanarkshire steel Co.
 Total Heating Surface of Boilers 2370 sq ft Is Forced Draft fitted no No. and Description of Boilers one single ended marine
 Working Pressure 135 Tested by hydraulic pressure to 270 Date of test 10-10-11 No. of Certificate 11226
 Can each boiler be worked separately ✓ Area of fire grate in each boiler 69 sq ft No. and Description of Safety Valves to each boiler two spring loaded Area of each valve 8.950" Pressure to which they are adjusted 138 lbs. Are they fitted with easing gear Yls.
 Smallest distance between boilers on uptakes and bunkers on woodwork 9" Mean dia. of boilers 15-9" Length 11-0" Material of shell plates steel
 Thickness 1" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams W.R.
 long. seams TR. D.B.S. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 6 1/8" Lap of plates or width of butt straps 1-5 1/2"
 Per centages of strength of longitudinal joint rivets 85.4 Working pressure of shell by rules 135.5 Size of manhole in shell 12 x 16"
 Size of compensating ring 6 3/4 x 1" No. and Description of Furnaces in each boiler 3 corrugated Material steel Outside diameter 4' 4 1/4"
 Length of con top 8" Thickness of plates 8 1/2" Description of longitudinal joint welded No. of strengthening rings none
 Working pressure of furnace by the rules 144 Combustion chamber plates: Material steel Thickness: Sides 9 1/16" Back 9 1/16" Top 9 1/16" Bottom 19 1/32"
 Pitch of stays to ditto: Sides 8 x 9 1/2" Back 8 3/4 x 8 3/4" Top 8 x 9 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 142
 Material of stays steel Diameter at smallest part 1.480" Area supported by each stay 76.560" Working pressure by rules 154 End plates in steam space: Material steel Thickness 1" Pitch of stays 1' 8 1/4" x 1' 5" How are stays secured W.N.B. wash Working pressure by rules 135 Material of stays steel
 Diameter at smallest part 4.90" Area supported by each stay 344.250" Working pressure by rules 156 Material of Front plates at bottom steel
 Thickness 23/32" Material of Lower back plate steel Thickness 23/32" Greatest pitch of stays 13 1/2" x 8 1/2" Working pressure of plate by rules 138
 Diameter of tubes 3 1/2" Pitch of tubes 4 5/8" x 4 1/2" Material of tube plates steel Thickness: Front 23/32" + 1" Back 1/16" Mean pitch of stays 11 1/4"
 Pitch across wide water spaces 14" Working pressures by rules 135 Girders to Chamber tops: Material Iron Depth and thickness of girder at centre 7 1/2" x 2" Length as per rule 2-8 3/4" Distance apart 9 1/4" Number and pitch of stays in each 3 @ 8"
 Working pressure by rules 137 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

VERTICAL DONKEY BOILER— Manufacturers of ~~Steel~~ Alex Anderson & Sons (No 1325)

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 _____ 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 _____ Rivets _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ 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:— 2 top end bolts & nuts, 2 bottom end bolts & nuts, 2 main bearing bolts
 1 set coupling bolts, 1 set feed & bilge pump valves, 1 set air pump valve, 1 set circulating pump valves, 1 propeller shaft
 4 propeller blades, 1 pair eccentric straps, 1 valve for main check, 1 valve for donkey check,
 quantity of bolts, nuts, boiler tubes, condenser tubes and firebars, 1 set piston springs for HP, 1 complete
 piston valve and springs
 The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops - 1911. Mar 20. Ap. 3. 4. 13. 25. May 1. 12. 17. 19. 22. 29. June 1. 5. 6. 7. 13. 16. 29.
 During erection on board vessel - July 3. 12. 27. Aug. 3. 10. 21. Sept. 5. 11. 13. 15. 29. Oct. 10. Nov. 15. 17. 23. 27. 29. Dec 2. 4. 12. 13. 23
 Total No. of visits 40. Is the approved plan of main boiler forwarded herewith yes ✓
 " " " donkey " " " yes ✓

Dates of Examination of principal parts—Cylinders 1-6-11 Slides 7-6-11 Covers 7-6-11 Pistons 11-9-11 Rods 19-5-11
 Connecting rods 12-5-11 Crank shaft 12-5-11 Thrust shaft 5-9-11 Tunnel shafts none Screw shaft 15-9-11 Propeller 13-9-11
 Stern tube 13-9-11 Steam pipes tested 2-12-11. Engine and boiler seatings 15-11-11 Engines holding down bolts 29-11-11.
 Completion of pumping arrangements 12-12-11 Boilers fixed 29-11-11. Engines tried under steam 23-12-1911.
 Main boiler safety valves adjusted 13-12-11. Thickness of adjusting washers 9/32 P. 11/32 S.
 Material of Crank shaft steel Identification Mark on Do. 872 Material of Thrust shaft steel Identification Mark on Do. 872
 Material of Tunnel shafts none Identification Marks on Do. ✓ Material of Screw shafts Iron Identification Marks on Do. 872
 Material of Steam Pipes Copper. Test pressure 240 lbs. ✓

General Remarks (State quality of workmanship, opinions as to class, &c.) The engine and boilers of this ship have been constructed under special survey and are of good material and workmanship. They have been securely fitted on board and tried under steam with satisfactory results, and are in my opinion eligible for the notation **+** L.M.C. 12, 11.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 12, 11.

J.W.D. P.A.S.L.
5/1/12

The amount of Entry Fee .. £ 2-0-0 When applied for,
 Special .. £ 19-10-0
 Donkey Boiler Fee .. £ : :
 Travelling Expenses (if any) £ : :
 When received, 6.1.12

P.J. Mann
 Hewitt & Davis
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

FRI. JAN. 5 - 1912

Committee's Minute GLASGOW 3 - JAN. 1912

Assigned + L.M.C. 12, 11 subject to classification of hull.



Glasgow.

Certificate (if required) to be sent to

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

24/11
30/12/11

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