

REPORT ON MACHINERY.

No. 22033

Port of Glasgow

Received at London Office

JUL 30 AUG 12 1904

No. in Survey held at
Reg. Book.GlasgowDate, first Survey 21st MarLast Survey 18th Aug 1903(Number of Vistas 23)on the Steel Screw Steamer "Emerald"Tons 706Master A. Leitch Built at Glasgow By whom built A. Rodger & CoWhen built 1904Engines made at Glasgow By whom made A. Rodger & Co (No 119)when made 1904Boilers made at do By whom made Leitch, Burnet & Co (No 983)when made 1904Registered Horse Power 117 Owners William RobertsonPort belonging to GlasgowNom. Horse Power as per Section 28 117 Is Refrigerating Machinery fitted NoIs Electric Light fitted YesENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks ThreeDia. of Cylinders 14" 27" 44" Length of Stroke 33" Revs. per minute 110 Dia. of Screw shaft 8" Material of IronIs 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 tightin 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 in the partbetween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If twoliners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 3' 0"Dia. of Tunnel shaft 8 3/4" Dia. of Crank shaft journals 8 3/4" Dia. of Crank pin 8 3/4" Size of Crank webs 12 5/4" Dia. of thrust shaft undercollars 8 3/4" Dia. of screw 10' 0" Pitch of screw 12' 3" No. of blades 4 State whether moveable No Total surface 33.3 PNo. of Feed pumps 2 Diameter of ditto 2 3/4" Stroke 16 1/2" Can one be overhauled while the other is at work YesNo. of Bilge pumps 2 Diameter of ditto 2 3/4" Stroke 16 1/2" Can one be overhauled while the other is at work YesNo. of Donkey Engines Three Sizes of Pumps 4" x 7" 6" No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room Three 2 1/4" { 4 No 7 Pulsometer In Holds, &c. Two 2"No. of bilge injections 1 sizes 4" Connected to condenser or to circulating pump Comp. Is a separate donkey suction fitted in Engine room & size Yes 2 1/4"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 NoneAre all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Large Valves, Small 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 AboveAre 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 YesWhat pipes are carried through the bunkers Iron held in chains How are they protected Strong wooden casingAre all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times YesAre the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges YesWhen were stern tube, propeller, screw shaft, and all connections examined in dry dock New York Is the screw shaft tunnel watertight No tunnelIs it fitted with a watertight door Yes worked from Machinery aftBOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 1856 Is forced draft fitted NoNo. and Description of Boilers One, Single Ended. Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbsDate of test 7.7.04 Can each boiler be worked separately Yes Area of fire grate in each boiler 61.2 No. and Description of safety valves toeach boiler Two, Direct Spring Area of each valve 3" Pressure to which they are adjusted 165 lbs Are they fitted with easing gear YesSmallest distance between boilers or uptakes and bunkers or woodwork Several ft Mean dia. of boilers 15' 0" Length 10' 6" Material of shell plates SteelThickness 1 3/32" Range of tensile strength 28 to 32 tons Are they welded or flanged No Descrip. of riveting: cir. seams Double riv. long. seams Double riv. StrapsDiameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 7/8" (5 riv. per pitch) of plates or width of butt straps 1' 1 1/2" x 1 1/8" insidePer centages of strength of longitudinal joint 85.5 Working pressure of shell by rules 160 lbs Size of manhole in shell 16" x 12"Size of compensating ring 5 1/4" x 1 3/32" x 1 3/32" No. and Description of Furnaces in each boiler Three plain Material Steel Outside diameter 3' 10"Length of plain part 70" Thickness of plates 3/4" Description of longitudinal joint Welded No. of strengthening rings One + trans. bottomWorking pressure of furnace by the rules 165 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 2 1/32" Top 9/16" Bottom 5/8"Pitch of stays to ditto: Sides 8 x 8 1/2" Back 9 x 9 1/2" Top 8 x 7 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 175Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 68" x 85 1/2" Working pressure by rules 161 End plates in steam space:Material Steel Thickness 29/32" Pitch of stays 15 x 15" How are stays secured Double nuts Working pressure by rules 171 Material of stays SteelDiameter at smallest part 3' 8 1/2" Area supported by each stay 225" Working pressure by rules 171 Material of Front plates at bottom SteelThickness 3/4" Material of Lower back plate Steel Thickness 1 1/16" Greatest pitch of stays 14 1/2" double Working pressure of plate by rules 160 lbsDiameter of tubes 3 1/2" Pitch of tubes 4 3/4" Material of tube plates Steel Thickness: Front 3/8" Back 3/4" Mean pitch of stays 12' 9 1/2"Pitch across wide water spaces 14 1/2" double Working pressures by rules 160 Girders to Chamber tops: Material Steel Depth andthickness of girder at centre 8" x 2" Length as per rule 3' 0" Distance apart 7 1/2" Number and pitch of Stays in each 3 at 8"Working pressure by rules 167 Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler workedseparately Yes Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivetholes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates ThicknessIf stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayedWorking pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

© 2018

Lloyd's Register
Foundation

DONKEY BOILER— No. *One* Description *Vertical. Two cross tubes.*

Made at Storckton By whom made Riley Bros. When made 1914 Where fixed In storckhol

Working pressure 80 ⁴⁶ tested by hydraulic pressure to 160 ⁴⁷ No. of Certificate 3213 Fire grate area 11 ¹⁰ Description of safety valves 2 No. Direct Spring

No. of safety valves 2 ^{Size} of each 2½" Pressure to which they are adjusted 85 lb If fitted with easing gear yes If steam from main boilers' can

enter the donkey boiler No. Dia. of donkey boiler 4' 6" Length 9' 6" Material of shell plates Steel Thickness $\frac{3}{8}$ Range of tensile

strength $27/32$ Descrip. of riveting long. seams Bout. riv. lap Dia. of rivet holes $13/16$ Whether punched or drilled Drilled Pitch of rivets $2 7/8$

Lap of plating $4\frac{1}{4}$ " Percentage of strength of joint Rivets 83.9 Thickness of shell crown plates $15\frac{1}{32}$ Radius of do. $5'0"$ No. of Stays to do. 4

Dia. of stays. $1\frac{1}{2}$ " Diameter of furnace Top $3' 9\frac{1}{4}"$ Bottom $3' 11\frac{1}{8}"$ Length of furnace $3' 7\frac{1}{2}"$ Thickness of furnace plates $1\frac{5}{32}"$ Description of

SPARE GEAR. State the articles supplied:— Propeller

2 Top end & 2 bot. end con. rod bolts. 2 Main bearing bolts. Set coupling bolts.

Feed & bilge pump valves. Boiler tubes. Condenser tubes. Feed check valves, etc.

Set rings for each piston. A & C pump valves. Iron & bolli & nuts assorted.

The foregoing is a correct description.

Manufacturer.

Dates of Survey while building	During progress of work in shops -	1904 Mar. 21, Apr. 19, 26, 27, May 6, 12, 18, 30, June 2, 9, 17, 24, 30
	During erection on board vessel -	28, July 5, 7, 12, Aug. 2, 3, 8, 11, 12, 15
	Total No. of visits	23

Is the approved plan of main boiler forwarded herewith ☒ Yes ☐ No

Is the approved plan of main boiler forwarded herewith Yes

donkey " " " No

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery has been constructed & fitted on board under special survey. The requirements of the Rules have been complied with & the workman ship has been found good.

Electric Lighting is fitted & the particulars will be forwarded shortly.

The machinery in my opinion renders the vessel eligible for the notation + Inc @ 8.00 in the Register.

THE RECORD FILM C. 8.04 ELEC: LIGHT

The amount of Entry Fee.. £ 2 : - When applied for,

Special £ 14 : 11 : 25 AUG 1904

Donkey Boiler Fee . . . £ : : When received.

Travelling Expenses (if any) £ 3-4-19

When applied for,

25 AUG 1904

When received,

3-78 19

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

Committee's Minute Glasgow 29 AUG 1904

Assigned

+ L.M.B. 8.04.
When fee is paid

MACHINERY CERTIFICATE
WRITTEN.

Edward