

REPORT ON MACHINERY.

No. 16402

Received at London Office

WED. MAR. 12 1913

Date of writing Report

19

When handed in at Local Office

21/2/1913 Port of GreenockNo. in Survey held at Greenock
Reg. Book.Date, First Survey 28th Dec. 1911 Last Survey 21st Feb. 1913(Number of Visits 74)Gross 11,118Net 7,026on the TWIN SCREW STEAMER 'BENALLA'When built 1913

Master

Built at GreenockBy whom built Caird & Co. Ltd.Engines made at GreenockBy whom made Caird & Co. Ltd.when made 1913Boilers made at GreenockBy whom made Caird & Co. Ltd.when made 1913

Registered Horse Power

Owners Penninsular & Oriental S.S. Coy.Port belonging to GreenockNom. Horse Power as per Section 28 1200Is Refrigerating Machinery fitted for cargo purposes YesIs Electric Light fitted Yes

ENGINES, &c.—Description of Engines

Quadruple ExpansionNo. of Cylinders FourNo. of Cranks FourDia. of Cylinders 23 1/2 - 34 1/2 - 48 1/2 - 70 Length of Stroke 54 Revs. per minute 88 Dia. of Screw shaft 14 1/2 Material of SteelIs 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 one length If the liner does not fit tightly at 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 5 feetDia. of Tunnel shaft 12 1/2 Dia. of Crank shaft journals 14 1/2 Dia. of Crank pin 14 1/2 Size of Crank webs 18 x 10 1/2 Dia. of thrust shaft undercollars 14 1/2 Dia. of screw 14 1/2 Pitch of Screw 18 0 No. of Blades 3 State whether moveable Yes Total surface YesNo. of Feed pumps 2 Diameter of ditto 10 1/2 Stroke 24 Can one be overhauled while the other is at work YesNo. of Bilge pumps 1 Diameter of ditto 10 1/2 Stroke 24 Can one be overhauled while the other is at work YesNo. of Donkey Engines 2 Sizes of Pumps 2 x 8 x 10 1/2 No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room 2 1/2 In Holds, &c. Nº1 HOLD 2-3 1/2 Nº2 HOLD 2-3 1/2Nº3 HOLD 2-3 1/2 Nº4 HOLD 2-3 1/2 Nº5 HOLD 2-3 1/2 TUNNEL WELLS 2-3 1/2No. of Bilge Injections 2 sizes 6 Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room of size Yes 3 1/2Are 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 YesAre all connections with the sea direct on the skin of the ship Yes Are they Valves, or Cocks BothAre 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 BelowAre 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 Yes How are they protected YesAre 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 YesDates of examination of completion of fitting of Sea Connections 4/10/12 of Stern Tube 16/10/12 Screw shaft and Propeller 25/10/12Is the Screw Shaft Tunnels watertight Yes Is it fitted with a watertight doors Yes worked from upper platformBOILERS, &c.—(Letter for record Yes) Manufacturers of Steel D. Colville & SonsTotal Heating Surface of Boilers 18188 Is Forced Draft fitted Yes No. and Description of Boilers Two Double, Two Single and one TripleWorking Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 5/11/12 No. of Certificate 1083Can each boiler be worked separately Yes Area of fire grate in each boiler 144.59 sq. ft. No. and Description of Safety Valves toeach boiler 2: one spring loaded Area of each valve 15.9 Pressure to which they are adjusted 220 lbs Are they fitted with easing gear YesSmallest distance between boilers or uptakes and bunkers or woodwork about 14 Mean dia. of boilers 16 1/2 Length 20 0 Material of shell plates SteelThickness 1 3/4 Range of tensile strength 30 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Doublelong. seams Double Diameter of rivet holes in long. seams 1 3/4 Pitch of rivets 10 1/2 Top of plates or width of butt straps 24 1/4Per centages of strength of longitudinal joint 95.2 Working pressure of shell by rules 253 lbs Size of manhole in shell 16 x 12Size of compensating ring 8 1/4 x 1 3/4 No. and Description of Furnaces in each boiler 8: Monitors Material Steel Outside diameter 4 1/2Length of plain part 8 2 Thickness of plates 5 1/4 Description of longitudinal joint Weld No. of strengthening rings 3: T. BarsWorking pressure of furnace by the rules 233 lbs Combustion chamber plates: Material Steel Thickness: Sides 5 1/8 Back 5 1/8 Top 3 1/2 Bottom 1 1/2Pitch of stays to ditto: Sides 7 1/2 Back 7 1/2 Top 9 1/2 8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 218 lbsMaterial of stays Steel Diameter at smallest part 1 1/2 Area supported by each stay 79 Working pressure by rules 238 lbs End plates in steam space:Material Steel Thickness 1 1/4 Pitch of stays 18 1/2 x 16 1/2 How are stays secured Double nuts Working pressure by rules 237 lbs Material of stays SteelDiameter at smallest part 3 3/4 Area supported by each stay 309 Working pressure by rules 264 lbs Material of Front plates at bottom SteelThickness 1 3/4 Material of Lower back plate Steel Thickness 1 3/4 Greatest pitch of stays 8 1/4 Working pressure of plate by rules YesDiameter of tubes 2 1/2 Pitch of tubes 3 1/2 x 3 1/2 Material of tube plates Steel Thickness: Front 1 1/4 Back 3 1/4 Mean pitch of stays 8 1/4Pitch across wide water spaces 1 1/2 Working pressures by rules 293 lbs Girders to Chamber tops: Material Steel Depth andthickness of girder at centre 9 x 1 1/2 Length as per rule 48 Distance apart 8 1/2 Number and pitch of stays in each 4: 9 1/2Working pressure by rules 223 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler workedseparately Yes Diameter 18 Length 18 Thickness of shell plates 1 1/4 Material Steel Description of longitudinal joint Weld Diam. of rivetholes 18 Pitch of rivets 10 1/2 Working pressure of shell by rules 293 lbs Diameter of flue 18 Material of flue plates Steel Thickness 1 1/4If stiffened with rings Yes Distance between rings 18 Working pressure by rules 293 lbs End plates: Thickness 1 1/4 How stayed YesWorking pressure of end plates 223 lbs Area of safety valves to superheater 18 Are they fitted with easing gear Yes

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Lloyd's Register
Foundation

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. *hoveh* 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
 Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays Plates
 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:— *1/2 Crank shaft, 1 Propeller shaft, 2 Propeller blades, 1 set for Blade studs, 1 set Crank pin Bushes, 1 eccentric Wheel strap, 3 Piston valves, 1 set Crosshead Bushes, 4 Sliding Piston, 1 set Piston Rod, 4 sets Piston Rings, 1 Piston Rod, 1 Piston Rod Gland, and pump Bucket Rod Operating Set Span gear for Centrifugal pump, 8 Piston valve Piston Rings, 6 Piston valve Connecting lines, 1 Thomson Shaft Coupler*
 The foregoing is a correct description, 2 spare armatures, and list of spare gear required by Rules

FOR CAIRD AND COMPANY, LIMITED.

Manufacturer.

Dates of Survey while building
 During progress of work in shops -- 1911 Dec 28, 1912 Jan 12, 29, Feb 6, 12, 14, 19, 27, 29, Mar 5, 21, Apr 2, 9, 17, 18, 29, May 3, 6, 8, 10, 17, 21, 30, June 14, 17, 27, July 22, 26, Aug 9, 10, 16, 20, 22, 24, 28, 29, Sept 3, 6, 7, 11, 13, 16, 18, 24, 25, 30, Oct 4, 5, 10, 14, 24, 29, Nov 5, 6, 13, 15, 22, 29, 30, Dec 5, 6, 12, 13
 During erection on board vessel -- 1913 Jan 10, 14, Feb 7, 12, 13, 21
 Total No. of visits 74
 Is the approved plans of main boilers forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 7/2/13 Slides 8/12 Covers 7/2/13 Pistons 17/6/12 Rods 4/10/12
 Connecting rods 4/10/12 Crank shaft See Report Thrust shaft 6/9/12 Tunnel shafts 6/9/12 Screw shaft 8/10/12 Propellers 16/9/12
 Stern tube 16/9/12 Steam pipes tested Glasgow. Engine and boiler seatings 16/9/12. Engines holding down bolts 30/11/12
 Completion of pumping arrangements 14/1/13. Boilers fixed 30/11/12. Engines tried under steam 7/2/13
 Main boiler safety valves adjusted 26/12/12. Thickness of adjusting washers PSE F 1 1/2" S.S.E.F. 1 1/2" S.S.E.F. 1 1/2" S.S.E.F. 1 1/2" P.D.E. 1 1/2" F.F.
 Material of Crank shaft Steel Identification Mark on Do. 942 D Material of Thrust shaft Steel Identification Mark on Do. 942 D
 Material of Tunnel shafts Steel Identification Marks on Do. 942 D. Material of Screw shafts Steel Identification Marks on Do. 942 D
 Material of Steam Pipes Wrot. Iron. Test pressure 645 lbs.

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

The Engines and Boilers of this vessel were built under special survey and the materials and workmanship are good. They were subsequently examined after running full power trials and found to work well.

The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of **LMC 2, 13** marked in the Society's Register Book.

Since completing this report I have been informed that after the speed trials the vessel dragged her anchors at the Tail the Bank, and a diver states that one of the Propellers has sustained some damage. It has been arranged to place the vessel in dry dock at London for examination.

It is submitted that this vessel is eligible for THE RECORD + LMC 2, 13.

F.D. Subject to the vessel being dry docked examined & any damage made good.

Wm R. Austin, Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee .. £ 3 : : When applied for, 8/3/13
 Special .. £ 75- : :
 Donkey Boiler Fee .. £ : :
 Travelling Expenses (if any) £ : :
 When received, 20/3/13 26/3/13

Committee's Minute GLASGOW 11 MAR. 1913

Assigned + L.M.C. 2, 13

WED. MAR. 26 1913

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Lloyd's Register Foundation

Greenock

Certificate (if required) to be sent to

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

244 10/3/13

subject to