

REPORT ON MACHINERY.

No. 16109

Received at London Office WED. OCT. 11. 1911

e of writing Report

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When handed in at Local Office

6th Oct. 1911 Port of Greenockin Survey held at
g. Book.

Port Glasgow

Date, First Survey 23rd January 1911 Last Survey 30th Sept. 1911

Number of Visits 67

on the SCREW STEAMER **EMERALD WINGS**

Gross 3139

Net 1985

When built 1911

Master Halley Built at Port Glasgow By whom built Russell 1864Engines made at Port Glasgow By whom made Glyde S.S. ring 604 diam. when made 1911Milers made at Port Glasgow By whom made Glyde S.S. ring 604 diam. when made 1911Registered Horse Power Owners King Steamship 604 diam. Port belonging to LondonHorse Power as per Section 28 287 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted NoGINES, &c.—Description of Engines Triplic expansion No. of Cylinders Three No. of Cranks ThreeDia. of Cylinders 23-37-61 Length of Stroke 42 Revs. per minute 68 Dia. of Screw shaft as per rule 12.8 Material of Ironthe screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tightthe 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 partbetween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If twobearers are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 4' 3"Dia. of Tunnel shaft as per rule 11.4 Dia. of Crank shaft journals as per rule 11.99 Dia. of Crank pin 12 Size of Crank webs 21 1/2 x 7 1/2 Dia. of thrust shaft underGillars 12 Dia. of screw 15.9 Pitch of Screw 15.6 No. of Blades 4 State whether moveable No Total surface 84 sq. ft.No. of Feed pumps 2 Diameter of ditto 3 1/2 Stroke 21 Can one be overhauled while the other is at work YesNo. of Bilge pumps 2 Diameter of ditto 4 Stroke 21 Can one be overhauled while the other is at work YesNo. of Donkey Engines 3 Sizes of Pumps 1/2 x 5 x 6, 9 x 12 x 10, 4 1/2 x 2 1/2 x 4 No. and size of Suctions connected to both Bilge and Donkey pumpsEngine Room Four: 3" dia. In Holds, &c. No 1 HOLD. Two - 3" dia. No 2 HOLD. Two - 3" dia.No 3 HOLD. Two - 3" dia. No 4 HOLD. Two - 3" dia. TUNNEL WELL. One - 2 1/2" dia.No. of Bilge Injections 1 sizes 5 1/2 Connected to condenser, or to circulating pump C. P. Is a separate Donkey Suction fitted in Engine room & size Yes: 3Are 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 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 None 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 30/8/11 of Stern Tube 30/8/11 Screw shaft and Propeller 12/9/11Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper platformsMILERS, &c.—(Letter for record \$) Manufacturers of Steel Steel 604 of ScotlandTotal Heating Surface of Boilers 44864 Is Forced Draft fitted No No. and Description of Boilers 2 Cylindrical mult. SingleWorking Pressure 180 lb. Tested by hydraulic pressure to 360 lb. Date of test 14/8/11 No. of Certificate 1018Can each boiler be worked separately Yes Area of fire grate in each boiler 63 sq. ft. No. and Description of Safety Valves toeach boiler 2: Direct Spring Area of each valve 4.06 Pressure to which they are adjusted 185 lb. Are they fitted with easing gear YesSmallest distance between boilers or uptakes and bunkers or woodwork About 10" Mean dia. of boilers 16' 0" Length 10' 6" Material of shell plates SteelThickness 1 1/2" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap doublelong. seams Double butt Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 8 1/2", 4 3/8" Lap of plates or width of butt straps 1' 7 1/2"Per centages of strength of longitudinal joint rivets 89.5 plate 85 Working pressure of shell by rules 180 lb. Size of manhole in shell 16" x 12"Size of compensating ring Flanged ring No. and Description of Furnaces in each boiler 3: Dighton's Material Steel Outside diameter 50 1/2"Length of plain part top 6' 7 1/2" Thickness of plates crown 1 1/8" Description of longitudinal joint Weld No. of strengthening rings NoneWorking pressure of furnace by the rules 187 lb. Combustion chamber plates: Material Steel Thickness: Sides 5" Back 3 1/2" Top 8" Bottom 13"Pitch of stays to ditto: Sides 8 1/2 x 9" Back 8 1/2 x 4 1/2" Top 9 x 4 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lb.Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 44" Working pressure by rules 247 lb. End plates in steam space:Material Steel Thickness 1 1/2" Pitch of stays 19 x 16 1/2" How are stays secured Double nuts Working pressure by rules 182 lb. Material of stays SteelDiameter at smallest part 2 1/4" Area supported by each stay 309" Working pressure by rules 195 lb. Material of Front plates at bottom SteelThickness 2 1/2" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 13 1/4" Working pressure of plate by rules 182 lb.Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates Steel Thickness: Front 1 1/8" Back 3/4" Mean pitch of stays 8' 9"Pitch across wide water spaces 14 1/2" Working pressures by rules 224 lb. 256 lb. Girders to Chamber tops: Material Steel Depth andthickness of girder at centre 9 1/2" x 1 1/2" Length as per rule 32.6" Distance apart 9" Number and pitch of stays in each 3' 4 1/2"Working pressure by rules 195 lb. Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler workedseparately Yes Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivetPitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness How stayedIf stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed Lloyd's RegisterWorking pressure of end plates Area of safety valves to superheater Are they fitted with easing gear Foundation

003541-003548-0031

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:— Propeller, Propeller shaft, 1 set Coupling Bolts, 2 Conn. Rod Bolts, 2 Piston Rod Bolts, 2 main Bearing Bolts, 3 Holding down Bolts, 6 Jack Ring Bolts, Complete set of Piston Packing Rings, 3 Cylinder Cover Stud nuts, 3 Valve Chest Cover Stud nuts, 1 set Feed pump valves for each pump, Complete set of Safety valve springs, 12 Boiler tubes, 12 Condenser tubes, 150 Fire Bars etc. etc.

The foregoing is a correct description, 1 set Selp. pump valves. ✓

THE CLYDE SHIPBUILDING & ENGINEERING CO. LIMITED,
 Manufacturer.

Dates of Survey while building	During progress of work in shops	1711. Jan 23-24-26 Feb. 3-10-16-24-27 Mar. 3-14-17-20-21-23-27-31 Apr. 4-6-11-13-14-17-19-20-25-28
	During erection on board vessel	2-8-16-12-16-17-19-23-29 June 2-6-9-13-16-20-24-28-29-30 July 4-18-21-24 Aug. 3-9-14-16-21-25-28-30
	Total No. of visits	44-1-4-12-14-21-22-25-28-30
		67.

Is the approved plan of main boiler forwarded herewith Yes ✓
 " " " donkey " " " Yes ✓

Dates of Examination of principal parts—Cylinders	30/9/11	Slides	11/4/11	Covers	30/9/11	Pistons	16/5/11	Rods	10/5/11
Connecting rods	10/5/11	Crank shaft	28/8/11	Thrust shaft	13/6/11	Tunnel shafts	13/6/11	Screw shaft	21/8/11
Propeller	21/8/11	Stern tube	21/8/11	Steam pipes tested	28/9/11	Engine and boiler seatings	21/9/11	Engines holding down bolts	22/9/11
Completion of pumping arrangements	28/9/11	Boilers fixed	28/9/11	Engines tried under steam	20/9/11				
Main boiler safety valves adjusted	28/9/11	Thickness of adjusting washers	Donkey Boiler: 1/2" 3/4" 1 1/4" 1 3/4" 2" 2 1/4" 2 3/4" 3" 3 1/4" 3 1/2" 4" 4 1/4" 4 1/2" 4 3/4" 5" 5 1/4" 5 1/2" 5 3/4" 6" 6 1/4" 6 1/2" 6 3/4" 7" 7 1/4" 7 1/2" 7 3/4" 8" 8 1/4" 8 1/2" 8 3/4" 9" 9 1/4" 9 1/2" 9 3/4" 10" 10 1/4" 10 1/2" 10 3/4" 11" 11 1/4" 11 1/2" 11 3/4" 12" 12 1/4" 12 1/2" 12 3/4" 13" 13 1/4" 13 1/2" 13 3/4" 14" 14 1/4" 14 1/2" 14 3/4" 15" 15 1/4" 15 1/2" 15 3/4" 16" 16 1/4" 16 1/2" 16 3/4" 17" 17 1/4" 17 1/2" 17 3/4" 18" 18 1/4" 18 1/2" 18 3/4" 19" 19 1/4" 19 1/2" 19 3/4" 20" 20 1/4" 20 1/2" 20 3/4" 21" 21 1/4" 21 1/2" 21 3/4" 22" 22 1/4" 22 1/2" 22 3/4" 23" 23 1/4" 23 1/2" 23 3/4" 24" 24 1/4" 24 1/2" 24 3/4" 25" 25 1/4" 25 1/2" 25 3/4" 26" 26 1/4" 26 1/2" 26 3/4" 27" 27 1/4" 27 1/2" 27 3/4" 28" 28 1/4" 28 1/2" 28 3/4" 29" 29 1/4" 29 1/2" 29 3/4" 30" 30 1/4" 30 1/2" 30 3/4" 31" 31 1/4" 31 1/2" 31 3/4" 32" 32 1/4" 32 1/2" 32 3/4" 33" 33 1/4" 33 1/2" 33 3/4" 34" 34 1/4" 34 1/2" 34 3/4" 35" 35 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