

## REPORT ON MACHINERY.

No. 50874.

RECEIVED FROM  
SURVEYOR

3 SEP 1906

Port of Newcastle &amp; Liverpool

Received at London Office  
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Reg. Book. Newcastle.Date, first Survey  
Liverpool July 5<sup>th</sup> 05. Last Survey 29<sup>th</sup> Aug 1906.

on the S.S. "St George".

Master Built at Liverpool By whom built Cammell Laird & Co  
Engines made at Newcastle By whom made Parsons & Co. St. Turbines & Co. when made 1906.

Boilers made at Rickenhead By whom made Cammell Laird &amp; Co when made 1905 &amp; 6

Registered Horse Power J.H.P. 4,400 for J.H.P. 1,342.35 Owners Great Western Railway Co Port belonging to London

Nom. Horse Power as per Section 28 9000 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Turbines  
Dia. of Cylinders 4' 2 3/4" to 4' 8" (2) LP Astern Cyls 4' 1 1/2" to 4' 6"  
Length of Stroke 4' 0" Revs. per minute 500. Dia. of Screw shaft as per rule 8 1/2" Material of screw shaft Steel

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 banded No 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 No Length of stern bushes 4' 6"

Dia. of Tunnel shaft as per rule 8" Dia. of Crank shaft journals as per rule 10" Dia. of Crank pin 10" Size of Crank webs 12" Dia. of thrust shaft under collars 12" Dia. of screw 7 1/4" Pitch of screw 72" No. of blades 3 State whether moveable f Total surface 2350"

No. of Feed pumps 2 Diameter of ditto 10" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 5" Stroke 10" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 See list attached No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 3 1/2" One 2 1/2" in each compartment.

No. of bilge injections 2 sizes 8 1/2" Connected to condenser, or to circulating pump Pump Is a separate donkey suction fitted in Engine room &amp; size Yes 3"

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 Yes

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 At line

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 None How are they protected No

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock 20.8.06 Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Upper platform 17.8.65

BOILERS, &amp;c.— (Letter for record (8) ) Total Heating Surface of Boilers 185 1/2 sq. ft. Is forced draft fitted Horizontal

No. and Description of Boilers Light Single ended Working Pressure 185 lb Tested by hydraulic pressure to 340 lb

Date of test 11.12.05 Can each boiler be worked separately Yes Area of fire grate in each boiler 54.45 No. and Description of safety valves to each boiler 2 No. Spring Area of each valve 8.61 Pressure to which they are adjusted 185 lb Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 9" Mean dia. of boilers 14.3 1/2" Length 11.4" Material of shell plates Steel

Thickness 1 1/2" Range of tensile strength 26.32 Are they welded or flanged No Descrip. of riveting: cir. seams Lap double long. seams 8.61

Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9.3 Lap of plates or width of butt straps 20 1/4"

Per centages of strength of longitudinal joint rivets 85.7% plate 85.21 Working pressure of shell by rules 203 Size of manhole in shell 16 x 13

Size of compensating ring 8 x 1 3/8" No. and Description of Furnaces in each boiler 3 Main Material Steel Outside diameter 3' 10 1/2"

Length of plain part top 5.0 bottom 8.7 Thickness of plates crown 1 3/8" bottom 1 3/4" Description of longitudinal joint Butt No. of strengthening rings 4

Working pressure of furnace by the rules 205 Combustion chamber plates: Material Steel Thickness: Sides 3/16" Back 3/16" Top 3/16" Bottom 3/8"

Pitch of stays to ditto: Sides 4 1/2" Back 4" Top 4 1/2" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 195

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 66" Working pressure by rules 200 End plates in steam space:

Material Steel Thickness 1 5/16" Pitch of stays 17 x 15 How are stays secured Anvil &amp; Nut Working pressure by rules 193 Material of stays Steel

Diameter at smallest part 2 5/8" Area supported by each stay 255" Working pressure by rules 211 Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 12 1/2" Working pressure of plate by rules 221

Diameter of tubes 2 1/2" Pitch of tubes 3 5/8" Material of tube plates Steel Thickness: Front 1" Back 3/8" Mean pitch of stays As plan

Pitch across wide water spaces 13 1/2" Working pressures by rules 194 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 4 x 2 1/2" Length as per rule 2' 4" Distance apart 4 1/4" Number and pitch of Stays in each 3 x 7 1/2"

Working pressure by rules 185 Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately No Diameter 2" Length 2" Thickness of shell plates 1" Material Steel Description of longitudinal joint Butt Diam. of rivet holes 1 3/8" Pitch of rivets 9.3 Working pressure of shell by rules 203 Diameter of flue 16" Material of flue plates Steel Thickness 1 1/2"

If stiffened with rings No Distance between rings 2" Working pressure by rules 194 End plates: Thickness 1 1/2" How stayed 4"

Working pressure of end plates 185 Area of safety valves to superheater 2" Are they fitted with easing gear No

006111-006125-0196



Made at	By whom made	When made	Where fixed
Working pressure	tested by hydraulic pressure to	No. of Certificate	Fire grate area
No. of safety valves	Area of each	Pressure to which they are adjusted	Description of safety valves
		If fitted with easing gear	If steam from main boilers can enter the donkey boiler
	Dia. of donkey boiler	Length	Material of shell plates
strength	Descrip. of riveting long. seams	Dia. of rivet holes	Thickness
		Whether punched or drilled	Range of tensile
Lap of plating	Per centage of strength of joint	Rivets	Pitch of rivets
		Plates	
Dia. of stays.	Thickness of shell crown plates	Radius of do.	No. of Stays to do.
	Diameter of furnace Top	Bottom	
	Length of furnace	Thickness of furnace plates	Description of
joint	Thickness of furnace crown plates	Stayed by	Working pressure of shell by rules
Working pressure of furnace by rules	Diameter of uptake	Thickness of uptake plates	Thickness of water tubes

SPARE GEAR. State the articles supplied:— 12 Shaft coupling bolts & nuts, 4 bearing scrapes  
10 dummy pins, 50 Condenser tubes, 1 main prop. shaft spindle, feed & oil  
valves, Safety and escape valves Spring, boiler R. R. Nevil  
tubes, valves & Spring for auxiliary pumps, tubes, bolts & girths  
The foregoing is a correct description,  
Manufacturer. Turbines only  
Harrison Hall

[illegible]

**General Remarks** (State quality of workmanship, opinions as to class, &c. The turbines for this vessel have been constructed under special survey. Materials and workmanship good and efficient they have been forwarded to Liverpool where they are to be fitted. The Casings have been tested by hydraulic pressure as stated below & found sound.

NP Steam en d. 246 Wg

AP York St " 130 Wg

LP(2) Steam 62 ms

L P - Ekst. 30 Mio

Steam pipes manovering & main Steam valves to 340 lbs

In our opinion this vessel is now eligible  
for the cord of \*L. M. C. 8/06. in the Register  
Book.

The machinery and boilers have been efficiently fitted  
tried under steam at sea and found satisfactory.

It is submitted that  
this vessel is eligible for  
THE RECORD III B

U.L.M.C. 8.06. F.D. ELEC:LIGHT.

### 3 TURBINES

The amount of Entry Fee.. £ 3 : 0 : 0 When applied for.

Special £ 88 : 12 : 19

Donkey Boiler Fee . . . £

Travelling Expenses (if any) £ : : 7.9.19

## Committee's Minute

LIVERPOOL. 1-4 SEP 1906

*Assigned*

✠ L. M. G. S. ob

MACHINERY CERTIFICATE  
WRITTEN.

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



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Foundation