

REPORT ON MACHINERY.

No. 65661
SAT. 8 APR 1911

Received at London Office

Date of writing Report -5 APR 1911 When handed in at Local Office -5 APR 1911 Port of LIVERPOOL
 No. in Survey held at Birkenhead Date, First Survey 7 Dec 09 Last Survey 27th Dec 1911
 Reg. Book. on the S.S. Highland Loch (Number of Visits 99)
 Master Birkenhead Built at Birkenhead By whom built Cammell Laird & Co. Ltd. Tons 1911
 Engines made at Birkenhead By whom made Cammell Laird & Co. Ltd. when made 1911
 Boilers made at " By whom made " when made 1911
 Registered Horse Power " Owners Nelson Line Ltd. Port belonging to London
 Nom. Horse Power as per Section 28 872 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes

ENGINES, &c.—Description of Engines

Dia. of Cylinders	Length of Stroke	Revs. per minute	Dia. of Screw shaft	No. of Cylinders	No. of Cranks
Is the screw shaft fitted with a continuous liner the whole length of the stern tube					
Is the after end of the liner made water tight in the propeller boss					
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					
If two liners are fitted, is the shaft lapped or protected between the liners					
Length of stern bush					
Dia. of Tunnel shaft as per rule as fitted					
Dia. of Crank shaft journals as per rule as fitted					
Dia. of Crank pin					
Size of Crank webs					
Dia. of thrust shaft under collars					
Dia. of screw					
Pitch of Screw					
No. of Blades					
State whether moveable					
Total surface					
No. of Feed pumps					
Diameter of ditto					
Stroke					
Can one be overhauled while the other is at work					
No. of Bilge pumps					
Diameter of ditto					
Stroke					
Can one be overhauled while the other is at work					
No. of Donkey Engines					
Sizes of Pumps					
No. and size of Suctions connected to both Bilge and Donkey pumps					
In Engine Room					
In Holds, &c.					
No. of Bilge Injections sizes					
Connected to condenser, or to circulating pump					
Is a separate Donkey Suction fitted in Engine room of size					
Are all the bilge suction pipes fitted with roses					
Are the roses in Engine room always accessible					
Are the sluices on Engine room bulkheads always accessible					
Are all connections with the sea direct on the skin of the ship					
Are they Valves or Cocks					
Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates					
Are the Discharge Pipes above or below the deep water line					
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel					
Are the Blow Off Cocks fitted with a spigot and brass covering plate					
What pipes are carried through the bunkers					
How are they protected					
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times					
Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges					
Dates of examination of completion of fitting of Sea Connections					
of Stern Tube					
Screw shaft and Propeller					
Is the Screw Shaft Tunnel watertight					
Is it fitted with a watertight door					
worked from					

BOILERS, &c.—(Letter for record (B)) Manufacturers of Steel Colvilles Sons Steel Co. of Scotland.

Total Heating Surface of Boilers 3520 sq ft Is Forced Draft fitted no No. and Description of Boilers One Single Ended Mult.
 Working Pressure 210 lbs. Tested by hydraulic pressure to 420 lbs. Date of test 27.10.10. No. of Certificate 1925.
 Can each boiler be worked separately yes Area of fire grate in each boiler 95 sq ft No. and Description of Safety Valves to each boiler 2 Direct Spring Area of each valve 8.29 sq in Pressure to which they are adjusted 210 lbs. Are they fitted with easing gear yes
 Smallest distance between boilers or upstays and bunkers or woodwork 12" Mean dia. of boilers 17'-3" Length 12'-0" Material of shell plates steel
 Thickness 1 1/4" Range of tensile strength 30.5 - 32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR. Lap. long. seams DR. DR. Diameter of rivet holes in long. seams 1 3/4" Pitch of rivets 10" Lap of plates or width of butt straps 2'-0 1/4"
 Per centages of strength of longitudinal joint rivets 102.7% Working pressure of shell by rules 248 Size of manhole in shell 16" x 12" plate 82.5%
 Size of compensating ring 10" x 1 1/2" wheels No. and Description of Furnaces in each boiler 4 Morrison Material steel Outside diameter 3'-10 1/2"
 Length of plain part top 1 1/2" bottom 1 1/2" Thickness of plates crown 5/8" bottom 3/8" Description of longitudinal joint weld. No. of strengthening rings none
 Working pressure of furnace by the rules 230 Combustion chamber plates: Material steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 1 1/2"
 Pitch of stays to ditto: Sides 7 1/2" x 8 3/4" Back 8 3/4" x 7 3/4" Top 7 3/4" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 212
 Material of stays steel Diameter at smallest part 1 1/4" Area supported by each stay 62.8 sq in Working pressure by rules 215 End plates in steam space: Material steel Thickness 1 1/2" Pitch of stays 16 3/4" x 16 3/4" How are stays secured Nuts and washers Working pressure by rules 216 Material of stays steel Diameter at smallest part 1 1/4" Area supported by each stay 276 sq in Working pressure by rules 244 Material of Front plates at bottom steel Thickness 1 1/2" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 13 3/4" Working pressure of plate by rules 298
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/8" x 4 3/8" Material of tube plates steel Thickness: Front 1 1/2" Back 1 3/16" Mean pitch of stays 8.75"
 Pitch across wide water spaces 14 1/4" Working pressures by rules 213 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8" x 2 1/2" Length as per rule 32 9/16" Distance apart 8" Number and pitch of stays in each 3 - 7 3/8"
 Working pressure by rules 225 Superheater or Steam chest; how connected to boiler none 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

No. _____ Description _____ When made _____ Where fixed _____
 Made at _____ By whom made _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____
 Working pressure _____ tested by hydraulic pressure to _____ Date of test _____
 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 _____ Rivets _____ Plates _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____
 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:—

For **CAMMELL LAIRD AND COMPANY LIMITED**

The foregoing is a correct description,
 Manufacturer.

J. M. Gibbon

Dates of Survey while building { During progress of work in shops -- }
 { During erection on board vessel --- }
 Total No. of visits _____
 Is the approved plan of main boiler forwarded herewith yes.

Dates of Examination of principal parts—Cylinders _____ Slides _____ Covers _____ Pistons _____ Rods _____
 Connecting rods _____ Crank shaft _____ Thrust shaft _____ Tunnel shafts _____ Screw shaft _____ Propeller _____
 Stern tube _____ Steam pipes tested _____ Engine and boiler seatings _____ Engines holding down bolts _____
 Completion of pumping arrangements _____ Boilers fixed _____ Engines tried under steam _____
 Main boiler safety valves adjusted 3.3.1911. Thickness of adjusting washers 7 + 3 3/8"
 Material of Crank shaft _____ Identification Mark on Do. _____ Material of Thrust shaft _____ Identification Mark on Do. _____
 Material of Tunnel shafts _____ Identification Marks on Do. _____ Material of Screw shafts _____ Identification Marks on Do. _____
 Material of Steam Pipes _____ Test pressure _____

General Remarks (State quality of workmanship, opinions as to class, &c.) *This machinery has been constructed under special survey, the materials and workmanship are good, & render the vessel in our opinion eligible to have record of \boxplus Mb. 3.11. in the Register Book of the Society.*

For Endorsement See Machinery Report JMD

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

R.D. Shilstone
A. J. Barrett Richard Hunt
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **LIVERPOOL**

Assigned

\boxplus Mb 3.11 *When the is 4th and.*

- 7 APR 1911

MACHINERY CERTIFICATE
 WRITTEN 8/4/11
 copy 19.10.11



© 2020

Lloyd's Register Foundation

Certificates (if required) to be sent to

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

No. _____
 When fixed _____
 73
 Num _____
 Num _____
 Rigg _____
 Stern _____
 Build _____
 Galle _____
 Head _____
 Frame _____
 vess _____
 Num _____
 Numbe _____
 and _____
 Total to g _____
 to bo _____
 No. of _____
 sets of _____
 Engines. _____
 One _____
 No. of _____
 Shafts. _____
 One _____
 Under To _____
 Space on _____
 Turret or _____
 Forecastle _____
 Bridge spa _____
 Poop or Br _____
 Side House _____
 Deck Hou _____
 Chart Hou _____
 Spaces for _____
 Section 7 _____
 1894 _____
 Excess of H _____
 Gr _____
 Deductions, _____
 Reg _____

NOTE. 2 The
 NOTE. 1. The
 manage
 d for