

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 27 Mch 1911
 Reg. Book. 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 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

No. of Cylinders 2 No. of Cranks 2
 Dia. of Cylinders 18" Length of Stroke 24" Revs. per minute 150 Dia. of Screw shaft 4" 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 burned yes 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 yes Length of stern bush 12"
 Dia. of Tunnel shaft 4" Dia. of Crank shaft journals 4" Dia. of Crank pin 4" Size of Crank webs 4" Dia. of thrust shaft under
 collars 4" Dia. of screw 4" Pitch of Screw 4" No. of Blades 4 State whether moveable yes Total surface 4"
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 4" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 4" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps 4" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4" In Holds, &c. 4"

No. of Bilge Injections 2 sizes 4" Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room yes
 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
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks yes
 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
 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
 What pipes are carried through the bunkers yes How are they protected yes

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
 Dates of examination of completion of fitting of Sea Connections yes of Stern Tube yes Screw shaft and Propeller yes

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from yes

BOILERS, &c.—(Letter for record (8)) Manufacturers of Steel Edinburgh Steel Co. 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 uptakes 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 DB. Lap.
 long. seams DB. Lap. Diameter of rivet holes in long. seams 1 3/4" Pitch of rivets 10" Lap of plates or width of butt straps 2'-0 1/2"
 Per centages of strength of longitudinal joint 100% Working pressure of shell by rules 248 Size of manhole in shell 16" x 12"
 Size of compensating ring 10" x 1 1/4" No. and Description of Furnaces in each boiler 4 Morrison Material steel Outside diameter 3'-10 1/2"
 Length of plain part top 1' 6" Thickness of plates bottom 1 1/4" 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" Back 5" Top 5" 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 1/8" Pitch of stays 16 3/8" x 16 3/8" 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 1/4" Pitch of tubes 4 3/8" x 4 3/8" Material of tube plates steel Thickness: Front 1 1/2" Back 1 3/8" 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 7/8" 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 yes Diameter 4" Length 4" Thickness of shell plates 1" Material steel Description of longitudinal joint yes Diam. of rivet
 holes 1" Pitch of rivets 1" Working pressure of shell by rules 213 Diameter of flue 4" Material of flue plates steel Thickness 1"
 If stiffened with rings yes Distance between rings 4" Working pressure by rules 213 End plates: Thickness 1" How stayed yes
 Working pressure of end plates 213 Area of safety valves to superheater yes Are they fitted with easing gear yes

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 _____ Date of adjustment _____
 Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Length _____
 If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____
 Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____ Rivets _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ 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:—

For CAMMELL LAIRD AND COMPANY LIMITED

The foregoing is a correct description,

Manufacturer.

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 P + S 3"
 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 MB. 3.11. in the Register Book of the Society.

For Endorsement See Machinery Rpt

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

Committee's Minute LIVERPOOL

Assigned

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

7 APR 1911

MACHINERY CERTIFICATE
 DATED 8/4/11



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