

REPORT ON MACHINERY.

No. 64119
SAT. 30 APR 1910

Date of writing Report 29 APR 1910 When handed in at Local Office 29 APR 1910 Received at London Office
 No. in Survey held at Birkenhead Date, First Survey 19 Last Survey 19
 Reg. Book. 13 on the S.S. Highland Laddie (Number of Visits 1)
 Master Andrew Built at Birkenhead By whom built Cammell Laird & Co. Ld. Tons { Gross 7117
 Engines made at Birkenhead By whom made Cammell Laird & Co. Ld. when made 1910 Net 4486
 Boilers made at No By whom made No when made 1909
 Registered Horse Power 855 Owners Nelson Line Ld Port belonging to London
 Nom. Horse Power as per Section 28 855 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Inverted vertical Triple No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders _____ Length of Stroke _____ Revs. per minute _____ Dia. of Screw shaft _____ Material of screw shaft _____
 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 _____ Dia. of Crank shaft journals _____ 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 & 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 stowhold 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 (8)) Manufacturers of Steel H. Colville & Sons & Steel Co. of Scotland
 Total Heating Surface of Boilers 3144 Is Forced Draft fitted no No. and Description of Boilers One Single ended Steel
 Working Pressure 210 lbs Tested by hydraulic pressure to 420 lbs Date of test 13.10.09 No. of Certificate 1898
 Can each boiler be worked separately yes Area of fire grate in each boiler 88.5 No. and Description of Safety Valves to each boiler Two Spring
 Area of each valve 9.82 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 16.6 Length 2.0 Material of shell plates Steel
 Thickness 1 3/8 Range of tensile strength 30.5-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Lap double
 long. seams Butt with Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 10" Lap of plates or width of butt straps 1.11 1/2
 Per centages of strength of longitudinal joint _____ Working pressure of shell by rules 244 lbs Size of manhole in shell 16x12
 rivets 96.42 plate 83.43 No. and Description of Furnaces in each boiler 4 Division Material Steel Outside diameter 3.9
 Size of compensating ring 8x17 1/2 Length of plain part _____ Thickness of plates _____ Description of longitudinal joint Bevel No. of strengthening rings none
 top _____ bottom _____ crown 2 1/2 bottom 2 1/2 Working pressure of furnace by the rules 237.5 Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 1"
 Pitch of stays to ditto: Sides 1/2 x 8 1/2 Back 8 1/2 x 1/2 Top 8 x 1/2 If stays are fitted with nuts or riveted heads into Working pressure by rules 210 lbs
 Material of stays Steel Diameter at smallest part 1.465 Area supported by each stay 63.75 Working pressure by rules 211.5 End plates in steam space: Material Steel Thickness 1 3/8 Pitch of stays 16 1/2 x 16 1/2 How are stays secured By nuts Working pressure by rules 211 Material of stays Steel
 Diameter at smallest part 2 1/8 Area supported by each stay 268 Working pressure by rules 257 Material of Front plates at bottom Steel
 Thickness 1 Material of Lower back plate Steel Thickness 1 Greatest pitch of stays 14 1/2 Working pressure of plate by rules 233
 Diameter of tubes 3 1/4 Pitch of tubes 4 3/8 Material of tube plates Steel Thickness: Front 1 1/8 Back 1 1/8 Mean pitch of stays 8 3/4
 Pitch across wide water spaces 14 1/2 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 2.8 3/4 Distance apart 8" Number and pitch of stays in each Four 4 1/2
 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 _____

If not stated whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?

W490-0245

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 Stayed by Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description, R.R. Bevin 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

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 210 lbs Thickness of adjusting washers Part 7/16 Star 1 3/2 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. The machinery has been specially surveyed during construction the material and workmanship good and render the vessel eligible in our opinion to have the Record L.M.S. H-10 in the Register Book of the Society.

Table with columns: The amount of Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses (if any), When applied for, When received. Values: £ 3. : 0 : 0, £ 62. 15 : - , £ : : , £ : : , 20 APR 1910, 1.6 10.

Committee's Minute LIVERPOOL: 29 APR 1910 Assigned See report attached.



Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.

Date of writing No. in Sur. Reg. Book. on 23 July Master Engines made Boilers made Registered L. Nom. Horse ENGINES Dia. of Cylt Is the screw in the prop between the liners are fit Dia. of Tunne collars 1 1/2 No. of Feed No. of Bilge No. of Donke In Engine I No. of Bilge I Are all the bil Are all conn Are they fixed Are they each What pipes a Are all Pipe Are the Bilge Dates of exa Is the Screw BOILERS Total Heati Working Pa Can each boi each boiler Smallest dista Thickness long. seams Per centages Size of compen Length of pla Working pres Pitch of stays Material of s Material Di Diameter at Thickness Diameter of Pitch across thickness of Working pre separately holes If stiffened Working pre