

REPORT ON MACHINERY.

No. 7307

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Date of writing Report 27th Nov 1913 When handed in at Local Office 24th Nov 1913 Port of Belfast
 No. in Survey held at Belfast Date, First Survey 2nd Oct 1912 Last Survey 25th Nov 1913
 Reg. Book. Y.S.S. Cardiganshire (Number of Visits 95)
 on the Y.S.S. Cardiganshire Tons { Gross 9420
 Master L. E. Warner Built at Belfast By whom built Workman Clark & Co. Ltd Net 5993
 Engines made at Belfast By whom made Workman Clark & Co. Ltd when made 1913
 Boilers made at Belfast By whom made Workman Clark & Co. Ltd when made 1913
 Registered Horse Power 947 Owner Royal Mail Steam Packet Co. Ltd Port belonging to Belfast
 Nom. Horse Power as per Section 28 947 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Triple Expansion of Cylinders No. of Cranks 6
 Dia. of Cylinders 24"-40 1/2"-68" Length of Stroke 48" Revs. per minute 76 Dia. of Screw shaft 14 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 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 60"
 Dia. of Tunnel shaft 12 1/2" Dia. of Crank shaft journals 13 1/2" Dia. of Crank pin 14" Size of Crank web 26" x 9 1/2" Dia. of thrust shaft under collars 14" Dia. of screw 1 1/4"-0 Pitch of Screw 18"-9 No. of Blades 3 State whether moveable Yes Total surface 85 sq ft.
 No. of Feed pumps None on Main Engines Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps One - each engine Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines See other sheet No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2 - 3 1/2" In Holds, &c. 13 - 3 1/2" & 8 - 2 1/2"

No. of Bilge Injections 2 sizes 8" Connected to condenser, or to circulating pump Yes Are the sluices on Engine room bulkheads always accessible Yes
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the Discharge Pipes above or below the deep water line Below
 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 Blow Off Cocks fitted with a spigot and brass covering plate Yes
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes How are they protected None
 What pipes are carried through the bunkers None 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 29/9/13 of Stern Tube 23/9/13 Screw shaft and Propeller 23/9/13
 Is the Screw Shaft Tunnel watertight Stated to be Is it fitted with a watertight door Yes worked from top platform Engine Room

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Beaumont & Co. Ltd
 Total Heating Surface of Boilers 9600 sq ft Forced Draft fitted Yes No. and Description of Boilers 2 Double End. Cylinders
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 7-10-13 No. of Certificate 456
 Can each boiler be worked separately Yes Area of fire grate in each boiler 118 1/2 sq ft No. and Description of Safety Valves to each boiler 3 - Direct Spring Area of each valve 12 1/2 sq in Pressure to which they are adjusted 200 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork about 18" Mean dia. of boilers 4'-10 1/2" Length 19'-9" Material of shell plates Steel
 Thickness 1 1/2" Range of tensile strength 28-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seam Top & P.
 long. seam Butt Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 22 1/2"
 Per centages of strength of longitudinal joint rivets 83.5 Working pressure of shell by rules 226 lbs Size of manhole in shell M. Nails 16 x 12
 plate 85.7 No. and Description of Furnaces in each boiler 6 - Mains Material Steel Outside diameter 47 1/2"
 Length of plain part 4" Thickness of plates 3 1/2" Description of longitudinal joint Weld No. of strengthening ring 25 on top & bottom
 Working pressure of furnace by the rules 232 lbs Combustion chamber plates: Material Steel Thickness: Sides 3 1/2" Back 3 1/2" Top 3 1/2" Bottom 4 1/2"
 Pitch of stays to ditto: Sides 8 1/2" x 8 3/8" Back 8" x 7" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 211 lbs
 Material of stays Steel Diameter at smallest part 1 5/8" Area supported by each stay 69 sq in Working pressure by rules 269 lbs End plates in steam space: Material Steel Thickness 1 3/4" Pitch of stays 18 1/2" x 14 1/2" How are stays secured Nuts Working pressure by rules 227 lbs Material of stays Steel
 Diameter at smallest part 2 1/4" Area supported by each stay 235 3/8 sq in Working pressure by rules 240 lbs Material of Front plates at bottom Steel
 Thickness 1" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 4 1/2" x 4 1/2" Working pressure of plate by rules 204 lbs
 Diameter of tubes 2 1/2" Pitch of tubes 3 1/2" x 3 5/8" Material of tube plates Steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 4 1/2" x 4 1/2"
 Pitch across wide water spaces 13 1/2" Working pressures by rules 204 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 4 1/2" (3 1/2" x 2) Length as per rule 52 1/2" Distance apart 8" Number and pitch of stays in each 6 - 4"
 Working pressure by rules 224 lbs Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked separately Yes
 Diameter 18" Length 18" Thickness of shell plates 1 1/2" Material Steel Description of longitudinal joint Weld Diam. of rivet holes 1 1/2" Pitch of rivets 10" Working pressure of shell by rules 204 lbs Diameter of flue 18" Material of flue plates Steel Thickness 1 1/2"
 If stiffened with rings Yes Distance between rings 18" Working pressure by rules 204 lbs End plates: Thickness 1 1/2" How stayed Weld
 Working pressure of end plates 204 lbs Area of safety valves to superheater 204 lbs Are they fitted with easing gear Yes

VERTICAL DONKEY BOILER— Manufacturers of Steel *None*

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:— *See other sheet*

The foregoing is a correct description,
 FOR WORKMAN, CLARK & CO., LIMITED
M. H. Bell Manufacturer.

Dates of Survey { During progress of work in shops - 1912 - Feb 2, 23, 30, Nov 1, 25, 28, 30, Feb 14, 20, March 10, 13, 21, 28, April
 while building { During erection on board vessel - 1, 3, 4, 10, 16, 21, 25, 29 up to 25th Nov 1913
 Total No. of visits 95

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

Dates of Examination of principal parts—Cylinders 20/12/13 Covers _____ Pistons _____ Rods _____
 Connecting rods 10/10/13 Crank shaft 13/8/13 shaft _____ Tunnel shafts 10/9/13 shaft _____ Propeller 9/9/13
 Stern tube 10/9/13 Steam pipes tested 2/9/13 Engine and boiler seatings 12/11/13 Engines holding down bolts 6/11/13
 Completion of pumping arrangements 24/11/13 Boilers fixed 12/11/13 Engines tried under steam 25/11/13
 Main boiler safety valves adjusted 18/11/13 Thickness of adjusting washers 10-14 "
 Material of Crank shaft *Steel* Identification Mark on Do. *LLOYDS 26-8-13* Material of Thrust shaft *Steel* Identification Mark on Do. *Do*
 Material of Tunnel shafts *Do* Identification Marks on Do. *Do* Material of Screw shafts *Do* Identification Marks on Do. *Do*
 Material of Steam Pipes *W. Iron* Test pressure 200 lbs

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The materials and the workmanship are of good description, and on trials in Belfast Lough, the machinery worked satisfactorily.
 In my opinion, it is eligible for record + L.M.C. 11-13, with notation "Forced Draft" "Electric Light" + "Refrigerating Machinery"

It is submitted that
 this vessel is eligible for
 THE RECORD. + L.M.C. 11-13. F.D.

Ref. Mch. *J.W. 3/12/13*

The amount of Entry Fee ... £ 3 : 0 :
 Special ... £ 68 : 14 :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 26-11-13
 When received, 2/12/13

R. L. Beveridge
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. DEC. 5 - 1913

Assigned *Home 11.13*

MACHINERY CERTIFICATE
 WRITTEN.

