

REPORT ON MACHINERY.

Received at London Office SAT. MAR. 14. 1914

Date of writing Report 10th March 14 When handed in at Local Office 10 Port of Belfast
 No. in Survey held at Belfast Date, First Survey 23rd Oct^r 1912 Last Survey 6th March 1914
 Reg. Book. on the S.S. Carnarvonshire (Number of Voids 107)
 Master L. W. Bolland Built at Belfast By whom built Wickman Clark & Co Tons } Gross 9406
 Engines made at Belfast By whom made - when made 1914 Net 5955
 Boilers made at - By whom made - when made -
 Registered Horse Power - Owners Royal Mail Steam Packet Coy belonging to Belfast
 Nom. Horse Power as per Section 28 977 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Triple Expansion of Cylinders 6 No. of Cranks 6
 Dia. of Cylinders 24"-40 1/2"-68" Length of Stroke 48 Revs. per minute 76 Dia. of Screw shaft as per rule 14.17 Material of Steel
 as fitted 15.0 screw shaft
 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 ✓ 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 60"
 Dia. of Tunnel shaft as per rule 12.59 Dia. of Crank shaft journals as per rule 13.5 Dia. of Crank pin 14 Size of Crank web 26" x 9 1/2" Dia. of thrust shaft under
 collars 14 Dia. of screw 17.0 Pitch of Screw 18'-9" No. of Blades 3 State whether moveable Yes Total surface 85 sq. ft.
 No. of Feed pumps None Can one be overhauled while the other is at work ✓
 No. of Bilge pumps One Can one be overhauled while the other is at work ✓
 No. of Donkey Engines See other sheets No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3-3 1/2" In Holds, &c. 13-3 1/2" and 8-2 1/2"
 No. of Bilge Injections 2 sizes 8" Connected to condenser, or to circulating pumps Is a separate Donkey Suction fitted in Engine room & size 20 3/4"
 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 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 Below
 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 ✓
 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 13-12-13 of Stern Tube 12-13 Screw shaft and Propeller 13-12-13
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform E. Room

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Readmore & Co
 Total Heating Surface of Boilers 9600 sq. ft. Forced Draft fitted Yes No. and Description of Boilers 2 Double End Cylind^r
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 4-12-13 No. of Certificate 458
 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 12.56 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 14-10 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. seams Lap & J.
 long. seams G. Butt Lap 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 83.5 Working pressure of shell by rules 226 lbs Size of manhole in shell 16" x 12"
 Size of compensating rim McKeels No. and Description of Furnaces in each boiler 6-Morrison's Material Steel Outside diameter 47 1/2"
 Length of plain part 4" Thickness of plates 4 1/2" Description of longitudinal joint Weld No. of strengthening rings 8
 Working pressure of furnace by the rules 232 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/2" Back ✓ Top 3 1/2" Bottom 1 1/2"
 Pitch of stays to ditto: Sides 8 1/2" x 8 3/8" Back ✓ Top 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 1/2" Area supported by each stay 69 sq. in. Working pressure by rules 269 lbs End plates in steam space:
 Material Steel Thickness 1 3/2" Pitch of stays 18 1/2" x 14 1/2" How are stays secured Nuts & Washers Working pressure by rules 227 lbs Material of stays Steel
 Diameter at smallest part 2 1/2" Area supported by each stay 235 3/8 sq. in. Working pressure by rules 270 lbs Material of Front plates at bottom Steel
 Thickness 1" Material of Lower back plate ✓ Thickness ✓ Greatest pitch of stays ✓ Working pressure of plate by rules ✓
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 5/8" Material of tube plates Steel Thickness: Front 3/4" Back 13/16" Mean pitch of stays 7 1/2" x 7 1/4"
 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 7 1/2" x (3 1/2" x 2) Length as per rule 52 3/8" Distance apart 8" Number and pitch of stays in each 6-7"
 Working pressure by rules 227 lbs Superheater or Steam chest; how connected to boiler - 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

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 othersheet ✓

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

M. W. Bell

Dates of Survey while building

During progress of work in shops - 1912. Dec. 23, 1913: - Feb. 14, 20, Mar. 6, 10, 13, 21, 28, Apr. 1, 10, 21, 25, 29, May 5

During erection on board vessel - June 2, 4, 9, 12, 16 up to 6th March 1914

Total No. of visits 104

Is the approved plan of main boiler forwarded herewith Yes ✓

Dates of Examination of principal parts—Cylinders 9-6-13 Slides Covers Pistons Rods

Connecting rods 26-11-13 Crank shaft 13 Thrust shafts Tunnel shafts Screw shafts 21-11-13 Propeller 20-11-13

Stern tube 2-12-13 Steam pipes tested 21-11-13 Engine and boiler seatings 20-1-14 Engines holding down bolts 30-1-14

Completion of pumping arrangements 5-3-14 Boilers fixed 12-1-14 Engines tried under steam 12-2-14

Main boiler safety valves adjusted 12-2-14 Thickness of adjusting washers 8-13 / 32

Material of Crank shaft I. Steel Identification Mark on Do. LLOYDS F.T.B. 21-11-13 Material of Thrust shaft I. Steel Identification Mark on Do. LLOYDS F.T.B. 21-11-13

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 600 lbs sq ✓

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 trial under steam in Belfast Lough the machinery worked satisfactorily.

In my opinion, it is eligible for record + L.M.C. 3-14 with notation "Forced Draft" "Electric Light" and "Refrigerating Machinery".

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 3. 14. F.D. Ref. Mch.

J.W.D. 16/3/14

The amount of Entry Fee	£ 3 : 0 :	When applied for,
Special	£ 68 : 17 :	5-3-14
Donkey Boiler Fee	£	When received,
Travelling Expenses (if any) £		10-3-14

R. J. Beveridge
Engineer (Surveyor to Lloyd's Register of British & Foreign Shipping.)

Committee's Minute TUE. MAR. 17. 1914
Assigned + L.M.C. 3. 14



Form No. 1A

Certificate (if required) to be sent to this office