

REPORT ON MACHINERY.

No. 7483

MON. JAN. 18, 1915

Date of writing Report 13th Jan 1915 When handed in at Local Office 10 Port of Belfast
 No. in Survey held at Belfast Date, First Survey 1st Oct 1913 Last Survey 8th Jan 1915
 Reg. Book. J.S.S. Ebro (Number of Visits 110)

Master Belfast Built at Belfast By whom built W. McKean Clark & Co. Ltd. Gross 8479
 Engines made at Belfast By whom made - Net 5173
 Boilers made at - By whom made - When built 1915
 Registered Horse Power 1055 Owner Royal Mail S.P. Co. Ltd. Port belonging to Belfast
 Nom. Horse Power as per Section 28 1067 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engine Twin Screw Quadruple Expansion Cylinders 8 No. of Cranks 8
 Dia. of Cylinders 22"-31½"-45½"-65" Length of Stroke 45" Revs. per minute 90 Dia. of Screw shaft as per rule 13¼" Material of 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 4'-9"
 Dia. of Tunnel shaft as per rule 11.9" Dia. of Crank shaft journals as per rule 12.6" Dia. of Crank pin 13¼" Size of Crank web 24½" x 9" Dia. of thrust shaft under
 collars 13¼" Dia. of screw 16"-6" Pitch of Screw 17'-9" No. of Blades 3 State whether moveable Yes Total surface 78 sq. ft.
 No. of Feed pumps one Diameter of ditto 5½" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps one Diameter of ditto 5½" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines one Sizes of Pumps 10-3½", 6-3", 3-2½"
 In Engine Room 6-3½" No. and size of Suctions connected to both Bilge and Donkey pumps

No. of Bilge Injections 2 sizes 9" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 3½"
 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 Yes
 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 Fore hold suction How are they protected Wood casing
 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 19-8-14 of Stern Tube 2-9-14 Screw shaft and Propeller 2-9-14
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Beaumont & Co. Ltd.
 Total Heating Surface of Boilers 44,940 sq. ft. Forced Draft fitted Yes No. and Description of Boilers 2 Double End Cylinders
 Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 10-9-14 No. of Certificate 466
 Can each boiler be worked separately Yes Area of fire grate in each boiler 143 sq. ft. No. and Description of Safety Valves to
 each boiler 3-Direct Spring of each valve 14' 18 sq. Pressure to which they are adjusted 215 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 15" Mean dia. of boilers 16'-0" Length 20'-0" Material of shell plates Steel
 Thickness 1½" Range of tensile strength 30½-33½ tons the shell plates welded or flanged No Descrip. of riveting: cir. seams Exp. Sp. S.
 long. seams D. Butt Substituted of rivet holes in long. seams 1½" Pitch of rivets 10½" Lap of plates or width of butt straps 23½"
 Per centages of strength of longitudinal joint 90.5% Working pressure of shell by rules 253 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 16" dia. No. and Description of Furnaces in each boiler 8-Morrison's Material Steel Outside diameter 44½"
 Length of plain part top 4'-6" Thickness of plates bottom 3½" Description of longitudinal joint Weld No. of strengthening rings 1
 Working pressure of furnace by the rules 248 lbs Combustion chamber plates: Material Steel Thickness: Sides 4½" Back 4½" Top 4½" Bottom 3½"
 Pitch of stays to ditto: Sides 7½" x 7½" Back 7½" x 7½" Top 8" x 8" If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 276 lbs
 Material of stay Steel at smallest part 2' 06 sq. Area supported by each stay 68 sq. Working pressure by rules 273 lbs End plates in steam space:
 Material Steel Thickness 1½" Pitch of stays 20' x 15½" How are stays secured to nuts + washers Working pressure by rules 216 lbs Material of stays Steel
 Diameter at smallest part 6' 09" x 7' 4½" supported by each stay 305 sq. Working pressure by rules 246 lbs Material of Front plates at bottom Steel
 Thickness 1" Material of Lower back plate 1" Thickness 1" Greatest pitch of stays 13" Working pressure of plate by rules 219 lbs
 Diameter of tubes 2½" Pitch of tubes 35" x 3½" Material of tube plate Steel Thickness: Front 1½" Back 1½" Mean pitch of stays 7½" x 7½"
 Pitch across wide water spaces 13½" Working pressures by rules 219 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 7½" x (¾" x 2) Length as per rule 49½" Distance apart 8½" Number and pitch of stays in each 6-6½" x 8"
 Working pressure by rules 253 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 -

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VERTICAL DONKEY BOILER—

Manufacturers of Steel ✓

No. _____ Description _____

Made at _____ By whom made _____

Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ When made _____ Where fixed _____

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 _____

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 of hense heet ✓*

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

M. A. Bell Manufacturer.

Dates of Survey while building { During progress of work in shops - 1913 - Dec 7, 10, 13, 21, 23, 31 Nov 23, 26, 28, 30, 1 Jan 1914, 19, 28.
During erection on board vessel - Feb 3, 9, 27, March 6, 11, 19, 24, 27, up till 8 Jan 1915
Total No. of visits 110

Is the approved plan of main boiler forwarded herewith *fe*

Dates of Examination of principal parts—Cylinders 19-18 Slides 14 Covers *to* Pistons _____ Rods _____

Connecting rods 4-9-14 Crank shaft 2-12-13 Thrust shaft _____ Tunnel shafts *to* Screw shaft 4-9-14 Propeller 10-8

Stern tube 10-8-14 Steam pipes tested 27-8-14 Engine and boiler seatings 29-9-14 Engines holding down bolts 10-10-15

Completion of pumping arrangements 8-1-15 Boilers fixed 29-9-14 Engines tried under steam 8-1-15

Main boiler safety valves adjusted 16-12-14 Thickness of adjusting washers 10-11-15

Material of Crank shaft *J. Steel* Identification Mark on Do. *LL0YDS* Material of Thrust shaft *W* Identification Mark on Do. *LL0YDS*

Material of Tunnel shafts *W* Identification Marks on Do. *LL0YDS* Material of Screw shafts *W* Identification Marks on Do. *LL0YDS*

Material of Steam Pipes *W. Iron* ✓ Test pressure 65 lb/sq in ✓

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

The machinery of this vessel has been constructed in Special Survey, and in accordance with the Rules. The materials, and the workmanship are of good description throughout, and on trial in Belfast Lough, the machinery worked satisfactorily. In my opinion, it is eligible for record of Survey + L.M.C. 1-15 with notation "Forced draft, Electric Lifting Regenerating Machinery"

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 1.15. F.D.

Ref. Mchy.

The amount of Entry Fee .. £ 3 : - : When applied for, 6-1-1915
Special .. £ 71 : 13 :
Donkey Boiler Fee .. £ ✓ : :
Travelling Expenses (if any) £ : : When received, 15-1-1915

Committee's Minute TUE. JAN. 19. 1915

Assigned + L.M.C. 1.15

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



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