

REPORT ON MACHINERY.

MON. 10 NOV 1902

Port of Belfast Received at London Office 10
 No. in Survey held at Belfast Date, first Survey 9th Oct 1901 Last Survey 11th Nov 1902
 Reg. Book. S.S. Iowa (Number of Visits 84)
 on the S. Wattens Built at Belfast By whom built Harland & Wolff L^{td} Tons { Gross 8369
 Master S. Wattens When built 1902 Net 5360
 Engines made at Belfast By whom made Harland & Wolff L^{td} when made 1902
 Boilers made at Belfast By whom made Harland & Wolff L^{td} when made 1902
 Registered Horse Power ✓ Owners White Diamond S.S. Coy L^{td} Port belonging to Liverpool
 Nom. Horse Power as per Section 28 812 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Turni Screw, Triple Expⁿ No. of Cylinders 6 No. of Cranks 6
 Dia. of Cylinders 23¹/₂ - 39 - 66 Length of Stroke 48 Revs. per minute 75 Dia. of Screw shaft 13¹/₂ - 13¹/₂ Lgth. of stern bush 54
 Dia. of Tunnel shaft 13¹/₂ - 13¹/₂ Dia. of Crank shaft journals 13¹/₂ - 13¹/₂ Dia. of Crank pin 14¹/₂ Size of Crank webs 26¹/₂ x 10 Dia. of thrust shaft under
 collars 13¹/₂ Dia. of screws 16 - 0 Pitch of screws 20 - 6 No. of blades 3 State whether moveable Yes Total surface 63¹/₂ sq ft.
 No. of Feed pumps 1 each Diameter of ditto 4¹/₂ Stroke 28 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 1 each Diameter of ditto 5 Stroke 28 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 6 Sizes of Pumps Maltac 12 x 10 x 14 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4 at 3¹/₂ x 2 at 2¹/₂ General 9 x 6 x 10 Boiler 8 x 6 x 8 Free Water 5 x 4 x 5 In Holds, &c. 13 at 3¹/₂, 2 at 3, 2 at 2¹/₂
 No. of bilge injections 2 sizes 8 Connected to condenser, or to circulating pump Pump Is a separate donkey suction fitted in Engine room & size Yes - 4 x 3¹/₂
 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 None
 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 Both
 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 For Lock Suctions 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
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock Ref^d launched Is the screw shaft tunnel watertight Stated & so
 Is it fitted with a watertight door Yes worked from Top platform Engine Room

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 14310 sq ft Is forced draft fitted No
 No. and Description of Boilers 2, Single Ended, 2, Double Ended Working Pressure 192 lbs Tested by hydraulic pressure to 384 lbs
 Date of test 20th 8-02 Can each boiler be worked separately Yes Area of fire grate in each boiler 8¹/₂ End 62¹/₂ No. and Description of safety valves to
 each boiler 2, End, Two Direct Spring Area of each valve 11¹/₂ sq in Pressure to which they are adjusted 192 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 15' - 6" Length 10' - 6" Material of shell plates Steel
 Thickness 1¹/₂" Range of tensile strength 29-32 Are they welded or flanged No Descrip. of riveting: cir. seams Top & Bottom Long. seams Butt, Double
 Diameter of rivet holes in long. seams 1¹/₂" Pitch of rivets 10" Lap of plates or width of butt straps 22¹/₂"
 Per centages of strength of longitudinal joint rivets 84¹/₂ Working pressure of shell by rules 220 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring W. Neils No. and Description of Furnaces in each boiler 2, 8.6 Material Steel Outside diameter 49¹/₂"
 Length of plain part 4" Thickness of plates 3¹/₂" Description of longitudinal joint Weld No. of strengthening rings 3¹/₂
 Working pressure of furnace by the rules 217 lbs Combustion chamber plates: Material Steel Thickness: Sides 3¹/₂" Back 3¹/₂" Top 3¹/₂" Bottom 3¹/₂"
 Pitch of stays to ditto 8 x 7¹/₂ Back 8 x 7¹/₂ Top 8 x 8¹/₂ Bottom 8 x 8¹/₂ If stays are fitted with nuts or riveted heads Nuts in ends Working pressure by rules 195 lbs
 Material of stays Steel Diameter at smallest part 1¹/₂ x 1¹/₂ Area supported by each stay 67¹/₂ sq in Working pressure by rules 198 lbs End plates in steam space:
 Material Steel Thickness 1" Pitch of stays 6¹/₂ x 1¹/₂ How are stays secured 2, Nuts & Washers Working pressure by rules 227 lbs Material of stays Steel
 Diameter at smallest part 2¹/₂ x 2¹/₂ Area supported by each stay 256 sq in Working pressure by rules 284 lbs Material of Front plates at bottom Steel
 Thickness 1¹/₂" Material of Lower back plate Steel Thickness 1¹/₂" Greatest pitch of stays 12¹/₂" Working pressure of plate by rules 216 lbs
 Diameter of tubes 2¹/₂" Pitch of tubes 4 x 4 Material of tube plates Steel Thickness: Front 7¹/₂" Back 7¹/₂" Mean pitch of stays 8 x 8
 Pitch across wide water spaces 14" Working pressures by rules 312 lbs Washers Double Washers Double Washers Double Washers Double Washers Double
 thickness of gasket at centre 8¹/₂ (7 x 2) Length as per rule 294 Distance apart 8¹/₂ x 8¹/₂ Number and pitch of Stays in each 8 x 8 - 8"
 Working pressure by rules 208 lbs Superheater or Steam chest; how connected to boiler ✓ Can the superheater be shut off and the boiler worked
 separately Yes Diameter 24" Length 20" Thickness of shell plates 1¹/₂" Material Steel Description of longitudinal joint Butt Diam. of rivet
 holes 1¹/₂" Pitch of rivets 10" Working pressure of shell by rules 220 lbs Diameter of flue 16" Material of flue plates Steel Thickness 1¹/₂"
 If stiffened with rings Yes Distance between rings 12" Working pressure by rules 220 lbs End plates: Thickness 1¹/₂" How stayed By stays
 Working pressure of end plates 220 lbs Area of safety valves to superheater 11¹/₂ sq in Are they fitted with easing gear Yes

If not, state whether, and when, one will be sent?

DONKEY BOILER—*None* Description

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____

No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ 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 _____ 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 _____

Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____

Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:—

1 Propeller Shaft, 2 Bronze Propeller blades; set crank pin brasses; set crosshead brasses; air pump bucket rod; air pump head & foot valves; set piston rings H.P. & M.P.; H.P. valve spindle & bush; L.P. ditto; centrifugal pump spindle; eccentric strap ect^s and all other gear to our requirements.

The foregoing is a correct description,

In *Harland & Wolff Ltd* Manufacturer.

Dates of Survey while building { During progress of work in shops - - - 1901 - Oct 9, Nov 26, Dec 5-13, 18, 20, 1902, Jan 2, 3, 10, 15, 21, 24, 28, Feb 5, 12, 14, 21, 25, March 5, 14, 20, 24, 27, April 8, 11, 14, 16, 23, 28, May 1, 9, 13, 16, 21, 28, 30 and up to 11 Nov 1902

Total No. of visits *84*

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

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

Material of screw shaft *Infot Steel* Is the screw shaft fitted with 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*

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The material, and the workmanship, is of good description throughout, and on trial the machinery worked satisfactorily.

In my opinion, it is eligible to have record + L.M.C. 11-02.

An electric light installation has been fitted by W. H. Allen & Son Ltd; a Report on which will be forwarded later.

It is submitted that this vessel is eligible for

THE RECORD - i - L M C 11-02 Elec. Light.

*10.11.02*The amount of Entry Fee, £ *3* : - : When applied for, *8-11-02*Special £ *60* : *12* : : *13-11-02*Donkey Boiler Fee £ : : : When received, *13-11-02*Travelling Expenses (if any) £ : : : *13-11-02*

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

Committee's Minute

Assigned

TUES. 11 NOV 1902

*+ L M C 11, 02*MACHINERY CERTIFICATE
WRITTEN.

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Foundation