

# REPORT ON MACHINERY.

Port of *Belfast*

Received at London Office **MUN. FEB 24 1902**

No. in Survey held at *Belfast* Date, first Survey *9<sup>th</sup> March 1901* Last Survey *20<sup>th</sup> Feb 1902*  
Reg. Book. *J.S.S. "Walmer Castle"* (Number of Visits *63*)

on the Master *Belfast* Built at *Belfast* By whom built *Harland & Wolff L<sup>td</sup>* Tons { Gross *12545*  
Net *6463*

Engines made at *Belfast* By whom made *Harland & Wolff L<sup>td</sup>* when made *1902*

Boilers made at *"* By whom made *"* when made *"*

Registered Horse Power *2040* Owners *Union Castle Mail S.S. Co. L<sup>td</sup>* Port belonging to *London*

Nom. Horse Power as per Section 28 *2040* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Quadruple Expansion, Turbine Screw* No. of Cylinders *4 each* No. of Cranks *4 each*

Dia. of Cylinders *32"-46"-66"-95"* Length of Stroke *60* Revs. per minute *75* Dia. of Screw shaft *as per rule 18.35* Lgth. of stern bush *78"*

Dia. of Tunnel shaft *as per rule 19.95* Dia. of Crank shaft journals *as per rule 17.84* Dia. of Crank pin *19 1/2"* Size of Crank webs *35 1/2" x 13 1/2"* Dia. of thrust shaft under collars *18 3/4"* Dia. of screws *8"-9"* Pitch of screw *26"-6"* No. of blades *3 each* State whether moveable *Yes* Total surface *86 1/2 sq ft each*

No. of Feed pumps *1 each* Diameter of ditto *6"* Stroke *30"* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *1 each* Diameter of ditto *6"* Stroke *30"* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *(See other sheet)* Sizes of Pumps *(See other sheet)* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *Two - 3 1/2" Strokehold 4-8 1/2" + 4-2 1/2"* In Holds, &c. *Eight - 3 1/2" Two - 3" Six - 2 1/2" Four - 1"*

No. of bilge injections *Two sizes 10 1/2"* Connected to condenser, or to circulating pump *Pump* Is a separate donkey suction fitted in Engine room & size *Yes - 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 *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 *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 bilge suction* How are they protected *Wood casings*

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 *Refuse launching* Is the screw shaft tunnel watertight *Stated &c*

Is it fitted with a watertight door *Yes* worked from *Upper Deck*

OILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *35964 sq ft* Is forced draft fitted *No*

No. and Description of Boilers *Eight Double & Two Single End* Working Pressure *216 lbs* Tested by hydraulic pressure to *432 lbs*

Date of test *30-8-01* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *112 x 108 in Double End* No. and Description of safety valves to each boiler *Two - Relief Spring* Area of each valve *2.56 sq in* Pressure to which they are adjusted *216 lbs* Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers *28-32* Mean dia. of boilers *4'-2"* Length *19'-6"* Material of shell plates *Steel*

Thickness *1 1/8"* Range of tensile strength *28-32* Are they welded or flanged *No* Descrip. of riveting: cir. seams *Lap. R. & T. seams* Butts *Double*

Diameter of rivet holes in long. seams *1 1/8"* Pitch of rivets *10"* Lap of plates on width of butt straps *22 3/4"*

Per centages of strength of longitudinal joint rivets *91.4* Working pressure of shell by rules *247 lbs* Size of manhole in shell *16" x 12"*

Size of compensating ring *Mc Nails* No. and Description of Furnaces in each boiler *6 - Morrison's material* Outside diameter *44 1/2"*

Length of plain part top *4"* bottom *4"* Thickness of plates crown *3 3/8"* bottom *3 3/8"* Description of longitudinal joint *Weld* No. of strengthening rings *37 on 80 ft. bottom*

Working pressure of furnace by the rules *238 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *5"* Back *5"* Top *5"* Bottom *5"*

Pitch of stays to ditto: Sides *8 x 7 1/2"* Back *8 x 7 1/2"* Top *8 x 7 1/2"* If stays are fitted with nuts or riveted heads *Nuts inside* Working pressure by rules *214 lbs*

Material of stays *Steel* Diameter at smallest part *1 1/8"* Area supported by each stay *62 sq in* Working pressure by rules *190 lbs* End plates in steam space:

Material *Steel* Thickness *1"* Pitch of stays *6 1/2" x 15 1/2"* How are stays secured *Water R. Washers* Working pressure by rules *227 lbs* Material of stays *Steel*

Diameter at smallest part *2 1/2" x 2 3/4"* supported by each stay *248 sq in* Working pressure by rules *242 lbs* Material of Front plates at bottom *Steel*

Thickness *5/8"* 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 *4" x 4"* Material of tube plates *Steel* Thickness: Front *1 1/8"* Back *1 1/8"* Mean pitch of stays *8" x 8"*

Pitch across wide water spaces *14"* Working pressures by rules *370 lbs with 2 Double* Girders to Chamber tops: Material *Iron* Depth and thickness of girder at centre *6 1/2" x (8" x 2)* Length as per rule *44"* Distance apart *7 1/2"* Number and pitch of Stays in each *4-8"*

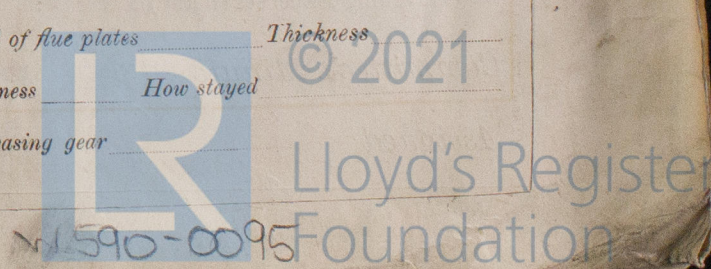
Working pressure by rules *282 lbs* Superheater or Steam chest; how connected to boiler *"* Can the superheater be shut off and the boiler worked separately *"*

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 *"*





## DONKEY BOILER—

Name

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 casing 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

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

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:

2 Bronze propeller blades & set studs & nuts for 1  
set connecting rod & braces; H.P. screwing strap complete; L.P. screwing strap  
complete; Centrifugal circulating pump spindle & impeller; air pump work & bushes  
complete; air pump head valve; set piston valve rings for H.P. 1 P. 1 P. 2; set  
piston rings for H.P. 1 P. 1 P. 2; air pump valve  
The foregoing is a correct description,  
for H.P. & L.P. screwing pump gear set  
and all gear to Lloyd's Rules Extra.

The foregoing is a correct description,

Manufacturer.

During progress of  
work in shops -  
Dates of Survey  
while building  
Total No. of visits

1901 - March 9, 14, 15, 16, 19, 29 April 4, 13, 18, 25, May 2, 10, 14, 17, 23, 24, 30  
June 5, 6, 10, 12, 14, 17, 19, 21, 24, 27, July 2, 3, 8, 9, 16, 24, 25, 26, 29, Aug 7, 13, 21, 30  
Sept 19, 24, 30 Oct 2, 10, 22, 31 Nov 11, 26, Dec 7, 9, 11, 14, 20  
up to Feb 20

Is the approved plan of main boiler forwarded herewith

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

Material of screw shaft

Hydr. Pressed Super Steel

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

The machinery of this vessel has been constructed under Special Survey in accordance with the Rules, and as per Secretary's letter dated 26 March 1901.

The material used in its construction, and the workmanship is of good description throughout.

On the occasion of the trial trip in Belfast Lough, the machinery worked most satisfactorily.

In my opinion, it is eligible to be classed + L.M.C. 2-02, "Electric Light".

It is submitted that

this vessel is eligible for

THE RECORD - L.M.C. 2,02. Elec. Light.

P.A.  
25-2-02

The amount of Entry Fee.

£

3

-

-

-

When applied for,

Special

£

122

-

-

-

When received,

Donkey Boiler Fee

£

-

-

-

-

When received,

Travelling Expenses (if any) £

-

-

-

-

-

When received,

Committee's Minute

TUES. FEB 25 1902

Assigned

MACHINERY CERTIFICATE  
WRITTEN.

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Lloyd's Register  
Foundation