

# REPORT ON MACHINERY.

No. 4107

Port of Belfast

1 JUN 92

Received at London Office

No. in Survey held at Belfast  
Reg. Book. Belfast  
Date, first Survey Dec 10<sup>th</sup> 1891 Last Survey May 28<sup>th</sup> 1892  
on the Steel Twin Screw Steamer "Lord Erne" (Number of Visits 22)  
Master James Dunn Built at Belfast By whom built Harland & Wolff Ltd  
Engines made at Belfast By whom made Harland & Wolff Ltd  
Boilers made at Belfast By whom made Harland & Wolff Ltd  
Registered Horse Power 418 Owners Irish Shipowners Co. Ltd. Port belonging to Belfast  
Nom. Horse Power as per Section 28 418

Tons { Gross 5609  
Net 3647  
When built 1892

ENGINES, &c.— Description of Engines Triple Expansion, Twin Screws  
Diameter of Cylinders 19"; 31"; 52" Length of Stroke 42" Revolutions per minute 80 No. of Cylinders six  
Diameter of Tunnel shaft as per rule 9 3/4 Diameter of Crank shaft journals 11" Diameter of Crank pin 11" Diameter of Screw shaft as per rule 10 1/4  
Diameter of screw 13" 9" Pitch of screw 17" 6" No. of blades 3 State whether moveable yes Total surface 50 sq ft each  
No. of Feed pumps 2 Diameter of ditto 4 1/4" Stroke 24" Can one be overhauled while the other is at work yes  
No. of Bilge pumps 2 Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work yes  
No. of Donkey Engines Three Sizes of Pumps Caruthers duplex 4 x 2 1/2 x 5" No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Three 3" dia Watson's Westmin. 10 x 10 x 10"  
No. of bilge injections 2 sizes 5" Connected to condenser, or to circulating pump circ. p. In Holds, &c. No 1 hold 3". No 2 hold two 2 1/2". No 3 hold two 2 1/2". No 4 hold one 3"  
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 valves & cocks  
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  
That pipes are carried through the bunkers Bilge pipes How are they protected 2" 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 examined before launching 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.) Total Heating Surface of Boilers 7276  
No. and Description of Boilers Two double ended Working Pressure 180 Tested by hydraulic pressure to 360  
Date of test 18.2.92 Can each boiler be worked separately yes Area of fire grate in each boiler 98 1/2 No. and Description of safety valves to  
each boiler Two. Cockburn's patent Area of each valve 11.04 Pressure to which they are adjusted 180 Are they fitted  
with casing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 4 feet Mean diameter of boilers 13" 0"  
Length 17' 0" Material of shell plates steel Thickness 1 9/32 Description of riveting: circum. seams Trieb. Ends double long. seams Double butt str.  
Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 9" & 4 1/2" Lap of plates or width of butt straps 1" 8 1/2" x 1"  
Percentages of strength of longitudinal joint 95 1/2 Working pressure of shell by rules 181 Size of manhole in shell 16" x 12"  
No. of compensating ring 2" 7" x 2" 3" x 1 3/32 No. and Description of Furnaces in each boiler 6 Tipped flues Material Steel Outside diameter 3' 2 1/2"  
Length of plain part top ribs spaced Thickness of plates crown 1/2" Description of longitudinal joint welded No. of strengthening rings 9 ribs  
Working pressure of furnace by the rules 192 Combustion chamber plates: Material steel Thickness: Sides 1 9/32 Back 3/4 Top 5/8 Bottom 3/4  
Pitch of stays to ditto: Sides 7 3/4 Back 7 1/4 Top 8 1/8 x 7 1/4 If stays are fitted with nuts or riveted heads nutted inside Working pressure by rules 203  
Material of stays steel Diameter at smallest part 1 3/8 Area supported by each stay 63 Working pressure by rules 188 End plates in steam space:  
Material steel Thickness 1 1/16 Pitch of stays 17" x 18" How are stays secured doub. nuts large washers Working pressure by rules 196 Material of stays steel  
Diameter at smallest part 2 7/8 Area supported by each stay 306 Working pressure by rules 206 Material of Front plates at bottom steel  
Thickness 13/16 Material of Lower back plate steel Thickness 3/4 Greatest pitch of stays as appri Working pressure of plate by rules 180  
Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 Material of tube plates steel Thickness: Front 7/8 Back 3/4 Mean pitch of stays 9 ins  
Pitch across wide water spaces 14 1/2" double Working pressures by rules 180 Girders to Chamber tops: Material WT Iron Depth and  
Thickness of girder at centre 5 1/2 x 1 3/4 Length as per rule 37 3/4 Distance apart 8" cen. Number and pitch of Stays in each 4 pitch 7 3/4  
Working pressure by rules 180 Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked  
Material steel Diameter 1 1/2 Length 10 Thickness of shell plates 1/2 Material steel Description of longitudinal joint Double butt Diam. of rivet  
Pitch of rivets 1 1/2 Working pressure of shell by rules 180 Diameter of flue 1 1/2 Material of flue plates steel Thickness 1/2  
Are they fitted with casing gear yes Distance between rings 1 1/2 Working pressure by rules 180 End plates: Thickness 1/2 How stayed as appri  
Material of plates steel Area of safety valves to superheater 11.04 Are they fitted with casing gear yes

Lloyd's Register Foundation

**REPORT ON MACHINERY**

**DONKEY BOILER**— Description *Auxiliary boiler used for donkey purposes.*

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. in Reg. Book \_\_\_\_\_

No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ If fitted with easing gear \_\_\_\_\_ If steam from main boilers enters the donkey boiler \_\_\_\_\_

Diameter of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_

Description of riveting long. seams \_\_\_\_\_ Diameter 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 \_\_\_\_\_

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 cast iron propeller blades. Air & oil pump rods. Act valves for air, oil, feed & bilge pumps. Valve spindles & neck bushes for M.P. & I.P. 6 pump ring bolts. 2 main bearings. 2 top end con. rod bolts. 2 bottom end bolts. 2 set coupling bolts. 8 propeller studs & nuts. 4 rings M.P. piston. 2 rings I.P. piston. 1 ring P. piston. 3 safety valve springs. 3 cyl. escape springs. 1 feed escape spring. 1/2 set furnace bars. 12 bolts to the foregoing is a correct description, *Harland & Wolff Ltd.* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been built under special survey throughout. The boilers are made as shown on the enclosed photographs & have been inspected during construction and tested as the Rules require.*

*The boiler steel was tested at the Steel works.*

*Each separate length of main steam pipe has been tested by water to double the working pressure.*

*The safety valves are all adjusted to lift at 180 lbs pressure per sq. inch. & the engines were worked under full steam for 20 hours on the 28<sup>th</sup> inst with good results.*

*The vessel is lighted throughout by electricity, particulars of the installation will be forwarded shortly.*

*The machinery in my opinion renders the vessel eligible for the record of + L.M.C. 5.92 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 5.92  
 W.A. 16.92

The Surveyors are requested not to write on or below the space for Committee's Minute.

Certificate (if required) to be sent to \_\_\_\_\_

The amount of Entry Fee... £ 3 : 00

Special ... .. £ 40 : 18 0

Donkey Boiler Fee ... .. £ : :

Travelling Expenses (if any) £ : :

When applied for, 31. May. 92

When received, 4/6/92

A. S. Jones  
 Engineer Surveyor to Lloyd's Register of British & Foreign Ships

Committee's Minute  
 Assigned

FRI 3 JUN 1892  
 + L.M.C. 5.92

