

# REPORT ON MACHINERY.

Port of Belfast

MON 21 FEB 1893

Received at London Office

No. in Survey held at Belfast  
Reg. Book.

Date, first Survey April 25<sup>th</sup> 1897 Last Survey July 17<sup>th</sup> 1898

(Number of Visits 35)

on the Steel screw steamer "Winifreda"

Tons } Gross 6833  
Net 4423

Master. Built at Belfast By whom built Harland & Wolff Ltd When built 1894-8

Engines made at Belfast By whom made Harland & Wolff Ltd when made 1894-8

Boilers made at Belfast By whom made Harland & Wolff Ltd when made 1894-8

Registered Horse Power 772 Owners F. Leyland & Co. Ltd Port belonging to Liverpool

Nom. Horse Power as per Section 28 772

**ENGINES, &c.—** Description of Engines Triple Expansion No. of Cylinders Three

Diameter of Cylinders 32 : 54 : 90 Length of Stroke 66 Revolutions per minute 68 Diameter of Screw shaft as per rule 17.92  
as fitted 18.4

Diameter of Tunnel shaft as per rule 16.22 Diameter of Crank shaft journals 18 1/4 Diameter of Crank pin 18 1/4 Size of Crank webs 13 1/8 x 24 1/2  
as fitted 17 1/4

Diameter of screw 20" 3" Pitch of screw 25" 0" No. of blades 4 State whether moveable Yes Total surface 118

No. of Feed pumps ✓ Diameter of ditto ✓ Stroke ✓ Can one be overhauled while the other is at work Weirs fed pumps only see other side.

No. of Bilge pumps Two Diameter of ditto 5" Stroke 36" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Five Sizes of Pumps See other side No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Three 3 1/2" In Holds, &c. No 1. One 3 1/2" No 2. One 3 1/2"  
No 3. One 3 1/2" No 4. One 3 1/2" No 5. Two 3 1/2" No 6. One 3 1/2" No 7. One 3 1/2" Tunnel well 2 1/2"

No. of bilge injections 1 sizes 10 1/2" Connected to condenser, or to circulating pump Cir. P. Is a separate donkey suction fitted in Engine room & size Yes 3 1/2"

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 Larger valves. Smaller 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

Are that 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before launch Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Deck level

**BOILERS, &c.—** (Letter for record S) Total Heating Surface of Boilers 12416 Natural draught

No. and Description of Boilers Two double & two single ended Working Pressure 190 lb Tested by hydraulic pressure to 380 lb

Date of test 1.12.97 Can each boiler be worked separately Yes Area of fire grate in each boiler 99 No. and Description of safety valves to  
7.12.97 Three Cochrane D.E. Area of each valve 15.03 49 1/2 S.E. Pressure to which they are adjusted 195 lb Are they fitted  
Two S.E. 11.04 S.E.

With easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 1" 3" Mean diameter of boilers 15' 3"

Length 17' 6" Material of shell plates Steel Thickness 1 5/32" Description of riveting: circum. seams Keel & double long. seams Butt straps.  
11' 0"

Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10" & 5" Top of plates or width of butt straps 1" 10 1/4" x 1 1/2" & 1 1/2"

Percentages of strength of longitudinal joint 89.7 Working pressure of shell by rules 214 lb Size of manhole in shell 16" x 12"  
plate 85.0

Size of compensating ring 2' 7" x 2' 3" x 1 1/2" No. and Description of Furnaces in each boiler 6 Morrison Material Steel Outside diameter 48 1/4"

Length of plain part top Thickness of plates bottom 5 1/8" Description of longitudinal joint Welded No. of strengthening rings ✓

Working pressure of furnace by the rules 208 Combustion chamber plates: Material Steel Thickness: Sides 19/32 Back 19/32 Top 1 1/16 Bottom 3/4

Pitch of stays to ditto: Sides 8" x 7 1/8" Back 8" x 7 1/8" Top 8" x 9" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 190 lb

Material of stays Steel Diameter at smallest part 1 3/8" 1 1/2" 1 5/8" Area supported by each stay 63 x 72 Working pressure by rules 190 lb End plates in steam space:  
Material Steel Thickness 1" Pitch of stays 17 1/2" x 16" How are stays secured Butt nuts & large washers Working pressure by rules 190 lb Material of stays Steel

Diameter at smallest part 2 3/4" Area supported by each stay 280 Working pressure by rules 210 Material of Front plates at bottom Steel  
Thickness 15/16" Material of Lower back plate Steel Thickness 15/16" Greatest pitch of stays As appx Working pressure of plate by rules 190

Diameter of tubes 3" Pitch of tubes 4 1/4" Material of tube plates Sal Thickness: Front 7/8 & 15/16 Back 3/4 D.E. Mean pitch of stays 8 1/2"

Each across wide water spaces 14 1/4" Working pressures by rules 190 lb Girders to Chamber tops: Material N. I. Depth and  
Thickness of girder at centre 6 1/2" x two 7/8" Suspended D.E. 42 D.E. Distance apart 9" max Number and pitch of Stays in each 4 at 8" D.E.  
10" x two 7/8" S.E. 3 at 8 1/4" S.E.

Working pressure by rules 192 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  
Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓

Stays fitted 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**— Description *None*

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 \_\_\_\_\_

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 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:— *Two bottom end & two top end bolts & nuts for connecting rods. 2 Main bearing bolts & nuts. 8 Coupling bolts for crank shaft & 8 for tan. sh. 2 pr. blades & 6 studs. 11 & 12 piston rings. 8 valves for Weir's feed pump. 2 bilge pump valves. A.P. bucket & rod. foot head valve. Centrif. fan & shaft. 10 safety valve springs. Valve spindle. 2 feed escape springs. Bolts & nuts various parts. The foregoing is a correct description, Boiler & condenser tubes. 100 Assorted bolts & nuts, etc.*

*Harland & Wolff* Manufacturer.

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

Dates of Survey while building

During progress of work in shops—	April 23 <sup>rd</sup> 1897	May 14 21	June 3 21	July 26	August 13 17 24 27
During erection on board vessel	Sept 1 15 21 30	Oct 1 18 26 28 29	Nov 11 16 23	Dec 1 3 6 7 8 13	
Total No. of visits	35				Jan 3 5 6 20 24

1898  
Feb 10 17

**Donkey Pumps:** Weir's duplex feed  $12\frac{1}{2} \times 9\frac{1}{2} \times 2.6$ . Maudslays duplex  $9 \times 6\frac{1}{2} \times 9$  (E.R. & Co.) No 9 Pulsometer for ballast & bilge. No 6 Pulsom. for winch condenser. Clarke Chapman & Co's dup.  $8 \times 5 \times 10$  for fire. A Railton & Campbell's feed filter, & a 40 ton Burgess evaporator are fitted. The furnaces are fitted with Henderson's self-cleaning fire bars.

These engines & boilers have been made & fitted under special survey & in accordance with the approved tracings of the boilers. The workmanship is good throughout. The main steam pipes have been tested as required by the Rules & found satisfactory.

The electric lighting installation is by Messrs W.A. Allen, Son & Co & the report will be sent in the course of a few days.

The boiler tracings are enclosed herewith.

The machinery in my opinion renders the vessel eligible for the notation *+ L.M.C. 2.98*

It is submitted that this vessel is eligible for THE RECORD. *+ L.M.C. 2.98 Elec Light.*

Certificate (if required) to be sent to

The amount of Entry Fee.	£ 3 : 0 :	When applied for,	
Special	£ 58 : 12 :	18 <sup>th</sup> July 1898	22.2.98
Donkey Boiler Fee	£	When received,	22.2.98
Travelling Expenses (if any)	£		

*A. L. Jones*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES. 22 FEB 1898**

Assigned *+ L.M.C. 2.98 Elec Light.*



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