

REPORT ON MACHINERY.

Port of Belfast

MON 11 (1894)

Received at London Office 18

No. in Survey held at Belfast Date, first Survey July 19th Last Survey October 8th 1894

Reg. Book. on the Steel Twin Screw Steamer "Derbyshire" (Number of Visits)

Master G. W. Harris Built at Belfast By whom built Harland & Wolff Ltd Tons { Gross 6635 Net 4236 When built 1894

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

Boilers made at " By whom made " when made "

Registered Horse Power 495 Owners The Bibby Steam Ship Co Ltd Port belonging to Liverpool

Nom. Horse Power as per Section 28 495

ENGINES, &c.— Description of Engines Triple Expansion Twin screws No. of Cylinders Six

Diameter of Cylinders 23 1/2; 39; 66 Length of Stroke 48 Revolutions per minute 72 Diameter of Screw shaft as per rule 12 3/8

Diameter of Tunnel shaft as per rule 11 1/4 Diameter of Crank shaft journals 13 3/4 Diameter of Crank pin 14 1/4 Size of Crank web 10 x 19 1/2

Diameter of screw 15 9/16 Pitch of screw 20 6/16 No. of blades 3 State whether moveable yes Total surface 61.5 each screw

No. of Feed pumps two Diameter of ditto 4 1/2 Stroke 28 Can one be overhauled while the other is at work One on each engine

No. of Bilge pumps two Diameter of ditto 5 Stroke 28 Can one be overhauled while the other is at work " " "

No. of Donkey Engines two 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 dia. In Holds, &c. Two 3 1/2 suction in each of

Nos 1, 2, 3 & 4 holds. One 3 1/2 in No 5 hold. Two 2 1/2 tunnel well suction. 2 1/2 suction to drain

No. of bilge injections 2 sizes 8 Connected to condenser, or to circulating pump 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

What pipes are carried through the bunkers Forward bilge suction How are they protected Strong wooden 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 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 14020 sq. ft.

No. and Description of Boilers Two double & two single-ended Working Pressure 185 lbs Tested by hydraulic pressure to 340 lbs

Date of test 26/8/94 Can each boiler be worked separately Yes Area of fire grate in each boiler 134.06 sq. ft. No. and Description of safety valves to

each boiler Two Cockburns Area of each valve 14.42 sq. ft. Pressure to which they are adjusted 185 lbs Are they fitted

with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork Several feet Mean diameter of boilers 15 5/16

Length 17 6/16 Material of shell plates Steel Thickness 1 1/2 Description of riveting: circum. seams Ends double, long seams Bolt straps

Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 10 maximum Lap of plates or width of butt straps 1 1/4

Per centages of strength of longitudinal joint 87.4 Working pressure of shell by rules 201 lbs Size of manhole in shell 16 x 12

Size of compensating ring 2 1/4 x 2 3/8 x 1 1/2 No. and Description of Furnaces in each boiler 8 Morrison Material Steel Outside diameter 4 3/4

Length of plain part top Thickness of plates crown 9/16 Description of longitudinal joint Welded No. of strengthening rings

Working pressure of furnace by the rules 203 1/4 Combustion chamber plates: Material Steel Thickness: Sides 19/32 Back 19/32 Top 11/16 Bottom 3/4

Pitch of stays to ditto: Sides 8 Back 8 Top 9 1/4 x 7 3/4 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 190 lbs

Material of stays Steel Diameter at smallest part 1 1/2 & 1 3/8 Area supported by each stay 74 & 64 Working pressure by rules 185 lbs End plates in steam space:

Material Steel Thickness 1 3/32 Pitch of stays 19 max How are stays secured Double nut Riveted washer Working pressure by rules 185 lbs Material of stays Steel

Diameter at smallest part 3 Area supported by each stay 318 Working pressure by rules 199 1/4 Material of Front plates at bottom Steel

Thickness 1 5/16 Material of Lower back plate Steel Thickness 1 5/16 Greatest pitch of stays As approx Working pressure of plate by rules 185 lbs

Diameter of tubes 3 Pitch of tubes 4 1/2 & 4 1/4 Material of tube plates Steel Thickness: Front 7/8 & 1 1/16 Back 3/4 Mean pitch of stays 8 3/8

Pitch across wide water spaces 14 Working pressures by rules 185 lbs Girders to Chamber tops: Material Wt. Iron Depth and

thickness of girder at centre 6 x 7/8 (two) N.E. suspended by 3 stays 39 3/4 Distance apart 9 1/4 Number and pitch of Stays in each four at 7 1/2



DONKEY BOILER— Description *No donkey boiler.*

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 boiler: _____
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 crosshead bolts & nuts. Two crank pin bolts & nuts. Two main bearing bolts & nuts. Set (8) Coupling bolts. Set feed & bilge pump valves. Set crank pin brasses. Eccentric strap & sheave complete. Valve spindle (H. or I.P.) & neck bushes. Air pump rod & two brass guards. Set metal A.P. valves. Nine studs & nuts for propeller blades. 12 Junk ring bolts.*

The foregoing is a correct description, *Studs for various glands re. Piston rod gland. Stop valve spindle.*
Harland & Wolff Ltd. Manufacturer. 6 Doz. assorted bolts & nuts. Iron of various sizes.

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

Dates of Survey while building
During progress of work in shops— *Jan'y 19. 25. Feb'y 9. 10. 23. March 4. 17. 23. April 5. 12. 14. 23. May 21.*
During erection on board vessel— *June 3. 14. 21. 26. July 26. Aug 13. 14. 23. 26. 27. 31. Sept 1. 9. 15. 20. 21. 22. 23*
Total No. of visits *Oct 1. 4. 8. - 35 visits*

Donkey Engines: *Engine Room donkey pump 9 x 6 x 7 duplex (Harland & Wolff Ltd)*
Boiler feed " " 5 1/4 x 4 x 5 " (Carruthers)
Westminster ballast " 10 x 10 x 10 simplex (Watson)
Weirs Boiler feed " 12 x 9 1/2 x 26 " (Weir's)
Sanitary " 8 x 6 x 8 duplex (Carruthers)
Fresh water " 5 1/4 x 4 x 5 " (")

The engines & boilers of this vessel have been built under special survey & the workmanship is good throughout. Each length of main steam pipe has been tested to double the working pressure by water pressure & found satisfactory.

The electric lighting has been fitted by Messrs W H Allen, Son & Co. The report will be sent shortly.

The photosprints of the boilers & plans of the pumping arrangements are forwarded herewith.

The machinery in my opinion renders the vessel eligible for the record of **+ L.M.C. 10.97** in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 10.97 Rec. Sign

A. L. Jones
11.10.97

Certificate (if required) to be sent to
The amount of Entry Fee.. £ 3 : 0 :
Special £ 59 : 17 :
Donkey Boiler Fee £ : :
Travelling Expenses (if any) £ : :
When applied for, 8th Oct 1897
When received, 11. 10. 97

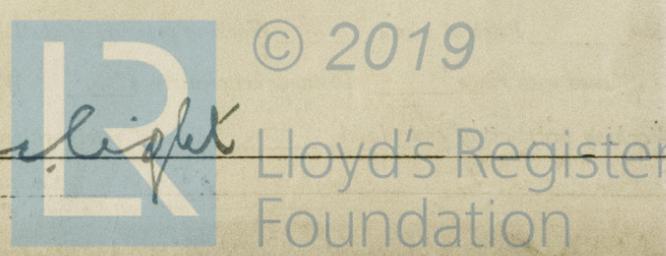
A. L. Jones
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

TUES. 12 OCT 1897

Committee's Minute

Assigned

+ L.M.C. 10.97



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