

## REPORT ON MACHINERY.

Port of *Belfast*Received at London Office **15 AUG 93**No. in Survey held at *Belfast*  
eg. Book.Date, first Survey *Nov. 3<sup>rd</sup> 92* Last Survey *Aug 10<sup>th</sup> 1893*(Number of Visits *31*)Tons *Gross 1630.3*  
*Net 448.8*on the *Steel Twin Screw Steamer "Magic"*Master *J. O. Dunlop* Built at *Belfast*By whom built *Harland & Wolff, Ltd*When built *1893*Engines made at *Belfast*By whom made *Harland & Wolff, Ltd*when made *1893*Boilers made at *Belfast*By whom made *Messrs Harland & Wolff, Ltd*when made *1893*Registered Horse Power *493 1/2*Owners *Belfast S. S. Co. Ltd*Port belonging to *Belfast*nom. Horse Power as per Section 28 *493.8*

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

Diameter of Cylinders *19" 31" 52"* Length of Stroke *36"* Revolutions per minute *130* Diameter of Screw shaft *as per rule 9.6" as fitted 10 3/4"*

Diameter of Tunnel shaft *as per rule 9.12" as fitted 10"* Diameter of Crank shaft journals *10 1/2"* Diameter of Crank pin *10 1/2"* Size of Crank webs *15" x 7 1/2" shaped*

Diameter of screw *10' 10"* Pitch of screw *14" 9"* No. of blades *3* State whether moveable *yes* Total surface *32" each screw*

No. of Feed pumps *two* Diameter of ditto *4 1/4"* Stroke *16"* Can one be overhauled while the other is at work *one on each engine*

No. of Bilge pumps *two* Diameter of ditto *5"* Stroke *16"* Can one be overhauled while the other is at work *one on each engine*

No. of Donkey Engines *three* Sizes of Pumps *Duplex donkey 7 1/2" x 5" x 6" Watson Ballast 9" x 6" x 9" Weirs feed 10" x 8" x 2 1/2"* No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room *Two, 3" diam & two 2 3/4" diam* In Holds, &c. *No 1 Hold, one 3" No 2 Hold, one 3"*

No 3 hold, two 2 3/4" No 4 hold, one 2 3/4"

No. of bilge injections *2 sizes 4"* Connected to condenser, or to circulating pump *Yes* Is a separate donkey suction fitted in Engine room & size *yes: 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 *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*

That pipes are carried through the bunkers *Forward bilge suction* How are they protected *strong 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 *26/7/93* Is the screw shaft tunnel watertight *yes*

Is it fitted with a watertight door *yes* worked from *main deck*

**BOILERS, &c.**— (Letter for record *S*) Total Heating Surface of Boilers *9948 sq. ft.*

No. and Description of Boilers *Four double ended* Working Pressure *180* Tested by hydraulic pressure to *360*

Date of test *25/4/93* Can each boiler be worked separately *yes* Area of fire grate in each boiler *71 1/2"* No. and Description of safety valves to

each boiler *Two, Cockburn's* Area of each valve *9.62"* Pressure to which they are adjusted *185 lbs* Are they fitted

with easing gear *yes* Smallest distance between boilers *or uptakes* and bunkers *or coodwork* *6"* Mean diameter of boilers *12' 3"*

Length *16' 0"* Material of shell plates *steel* Thickness *1 3/16"* Description of riveting: circum. seams *ends double long, seams double strap*

Diameter of rivet holes in long. seams *1 1/4"* Pitch of rivets *8 1/2"* Lap of plates *others treble* Width of butt straps *5 rivets per pitch*

Percentage of strength of longitudinal joint *85.29* Working pressure of shell by rules *197* Size of manhole in shell *12 x 16*

Size of compensating ring *2' 3" x 2' 7" x 1 3/16"* No. and Description of Furnaces in each boiler *Four, ribbed* Material *steel* Outside diameter *42"*

Length of plain part *top ribs at 9" bottom 9"* Thickness of plates *9/16"* Description of longitudinal joint *welded* No. of strengthening rings *8 ribs*

Working pressure of furnace by the rules *193* Combustion chamber plates: Material *steel* Thickness: Sides *19/32"* Back *5/8"* Top *3/4"* Bottom *3/4"*

Pitch of stays to ditto: Sides *8 1/4" x 8"* Back *8 1/2" x 7 1/8"* If stays are fitted with nuts or riveted heads *nuts inside* Working pressure by rules *149*

Material of stays *steel* Diameter at smallest part *1 3/8"* Area supported by each stay *66 sides* Working pressure by rules *178* End plates in steam space:

Material *steel* Thickness *1"* Pitch of stays *17 1/2" x 18"* How are stays secured *doub. nut washers* Working pressure by rules *180* Material of stays *steel*

Diameter at smallest part *2 5/8"* Area supported by each stay *272* Working pressure by rules *180* Material of Front plates at bottom *steel*

Thickness *7/8"* Material of Lower back plate *steel* Thickness *3/4"* Greatest pitch of stays *as app<sup>rd</sup>* 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"*

Pitch across wide water spaces *14 1/2"* Working pressures by rules *180* Girders to Chamber tops: Material *wood* Depth and

Thickness of girder at centre *2 plates 5 3/8" x 7/8"* Length as per rule *37 3/4"* Distance apart *8 1/2"* Number and pitch of Stays in each *four at 7 1/8"*

Working pressure by rules *180* Superheater or Steam chest; how connected to boiler *each girder supported by 2 3/4" in. hanging stay* Can the superheater be shut off and the boiler worked

separately *yes* Diameter *18"* Length *18"* Thickness of shell plates *1/8"* Material *steel* Description of longitudinal joint *as above* Diam. of rivet

holes *1/8"* Pitch of rivets *8"* Working pressure of shell by rules *180* Diameter of flue *18"* Material of flue plates *steel* Thickness *1/8"*

If stiffened with rings *yes* Distance between rings *18"* Working pressure by rules *180* End plates: Thickness *1/8"* How stayed *as above*

Working pressure of end plates *180* Area of safety valves to superheater *18"* Are they fitted with easing gear *yes*



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 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:— 2 Connecting rod top end, & 2 bottom end, bolts & nuts.  
2 Main bearing bolts & 6 coupling bolts. Set studs & nuts for propeller blade. Air pump bucket & rod complete. Set air & feed pump valves. Set bilge pump valves & seals. 2 H.P. piston rings, 2 M.P. & 2 L.P. 6 junk ring bolts. 3 cyl. escape valves & springs. 10 condenser tubes & 40 ferrules. Half set furnace bars.  
2 Safety valve springs.

The foregoing is a correct description,

Manufacturer.

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

This machinery has been constructed under special survey, the boilers in accordance with the approved photograph now returned, & the workmanship is throughout good.

Each length of main steam pipe & the boilers have been tested to 360 lbs water pressure with good result.

The vessel ran a satisfactory trial in the Belfast Lough on the 10th inst under full steam the engines developing about 3400 IHP at 130 revs. The safety valves are adjusted to lift at 185 lbs.

The approved plan of the pumping arrangements is herewith returned.

The vessel is electric lighted by W & A Allen & Co. & the report of particulars will be forwarded soon.

The machinery in my opinion renders the vessel eligible for the record of + LMC 8.93 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + LMC 8.93 —

15/8/93 —

Certificate (if required) to be sent to

MACHINERY CERTIFICATE WRITTEN

The amount of Entry Fee.. £ 3 : 00 When applied for,  
Special .. .. £ 44 : 14 0 11th Aug 93  
Donkey Boiler Fee .. .. £ : : When received,  
Travelling Expenses (if any) £ : : 15th 8 93

Committee's Minute

FRI 18 AUG 1893

Assigned

+ LMC 8.93

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



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Lloyd's Register Foundation

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