

REPORT ON MACHINERY.

Port of *Belfast*

Received at London Office

12 APR. 92

To. in Survey held at
Book.*Belfast*Date, first Survey *Sept 14th 1891* Last Survey *April 9th 1892*(Number of Visits *29*)on the *Steel Twin Screw Steamer "Manitoba"*Tons { Gross *5591*
Net *3604*ter *R. Griffith* Built at *Belfast*By whom built *Harland & Wolff Ltd*When built *1892*ines made at *Belfast*By whom made *Messrs Harland & Wolff (Lim)*when made *1892*ers made at *Belfast*By whom made *Messrs Harland & Wolff (Lim)*when made *1892*stered Horse Power *600*Owners *Williams, Torrey & Field Ltd* Port belonging to *London*Horse Power as per Section 28 *599.5*

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

Diameter of Cylinders *22½, 36½ & 60"* Length of Stroke *48"* Revolutions per minute *72* Diameter of Screw shaft *as per rule 11.7*
as fitted 13 ins

Diameter of Tunnel shaft *as fitted 12¼"* Diameter of Crank shaft journals *12¾"* Diameter of Crank pin *12¾"* Size of Crank webs *9" x 16" shaped*

Diameter of screw *15" x 4½"* Pitch of screw *21 ft* No. of blades *3* State whether moveable *yes* Total surface *60 sq ft each set*

of Feed pumps *two* Diameter of ditto *3½"* Stroke *24"* Can one be overhauled while the other is at work *One pump on each engine*

of Bilge pumps *two* Diameter of ditto *5"* Stroke *24"* Can one be overhauled while the other is at work *"*

of Donkey Engines *Four* Sizes of Pumps { *Worthington duplex 9" x 6" x 6"* No. and size of Suctions connected to both Bilge and Donkey pumps
Watsons Westminster 10" x 10" x 10"
Weir fed 10" x 8" x 24" In Holds, &c. No 1 hold; two 2½" No 2 hold, two 2½"

Engine Room *Three 3" to both bilge & Weir fed 10" x 8" x 24"* In Holds, &c. No 1 hold; two 2½" No 2 hold, two 2½"

Key pumps: *1 one 2½" donkey suction* No 3 hold two 2½" ins No 4 hold one 3" No 5 two 2½"

Bilge injections *2 sizes 6"* Connected to condenser, or to circulating pump *circ p.* Is a separate donkey suction fitted in Engine room & size *yes 2½"*

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*

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*

How are the pipes carried through the bunkers *lead bilge pipes* How are they protected *strong wood casing*

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*

Were stern tube, propeller, screw shaft, and all connections examined in dry dock *examined before launching* Is the screw shaft tunnel watertight *yes*

Is the tunnel fitted with a watertight door *yes* worked from *level of upper deck*

BOILERS, &c.—

(Letter for record *S*)Total Heating Surface of Boilers *10500*

and Description of Boilers *Two double ended & two single ended* Working Pressure *175 lb* Tested by hydraulic pressure to *350 lb*

of test *23.12.9* Can each boiler be worked separately *yes* Area of fire grate in each boiler *d.e. 109* No. and Description of safety valves to *S.E. 54*

boiler *Cockburn's, two each boiler* Area of each valve *d.e. 17.7* Pressure to which they are adjusted *175 lb* Are they fitted *S.E. 895*

Raising gear *yes* Smallest distance between boilers or uptakes and bunkers or woodwork *1' 6" to 6" corner of bunkers in stokehold* Mean diameter of boilers *14" 1"*

Material of shell plates *Steel* Thickness *1½"* Description of riveting: circum. seams *treb: ends doub. long. seams treb. riv. doub. shapes*

Diameter of rivet holes in long. seams *13/8"* Pitch of rivets *9" & 4½"* Lap of plates or width of butt straps *shapes 20½ x 1½"*

Percentages of strength of longitudinal joint *88.40* Working pressure of shell by rules *175.1 lb* Size of manhole in shell *16" x 12"*

of compensating ring *2' 7" x 2' 3" x 1½"* No. and Description of Furnaces in each boiler *6 in Doub. End. 3" Sing* Material *steel* Outside diameter *3' 4½"*

of plain part *top ribs* Thickness of plates *17/32"* Description of longitudinal joint *Weld. Ribbed flues* No. of strengthening rings *9 ribs*

Working pressure of furnace by the rules *185 lb* Combustion chamber plates: Material *steel* Thickness: Sides *19/32* Back *19/32* Top *5/8* Bottom *3/4*

of stays to ditto: Sides *7 7/8 x 7 7/8* Back *7 1/2 x 7 7/8* Top *8 x 8 1/4* If stays are fitted with nuts or riveted heads *nuts inside* Working pressure by rules *196 lb*

Material of stays *Steel* Diameter at smallest part *1 3/8"* Area supported by each stay *66 top* Working pressure by rules *191 ends 179 top* End plates in steam space:

Material *Steel* Thickness *3 1/32"* Pitch of stays *16 3/4 x 17 1/4* How are stays secured *double nuts* Working pressure by rules *177 lb* Material of stays *steel*

Diameter at smallest part *2 5/8"* Area supported by each stay *278* Working pressure by rules *178 lb* Material of Front plates at bottom *steel*

Material of Lower back plate *steel* Thickness *29/32"* Greatest pitch of stays *as approx* Working pressure of plate by rules *175 lb*

Diameter of tubes *3 1/4"* Pitch of tubes *4½"* Material of tube plates *steel* Thickness: Front *7/8"* Back *3/4"* Mean pitch of stays *9"*

across wide water spaces *1' 2 1/2"* Working pressures by rules *175 lb +* Girders to Chamber tops: Material *W iron* Depth and

of girder at centre *10" x 5" x 7/8"* Length as per rule *d.e. 37 1/2"* Distance apart *8 1/4"* Number and pitch of Stays in each *two 8" d.e.*

Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler worked

Pressure by rules *S.E. 220* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler worked

Material of shell plates *steel* Thickness of shell plates *29/32"* Material *steel* Description of longitudinal joint *Weld* Diam. of rivet

Pitch of rivets *9"* Working pressure of shell by rules *175 lb* Diameter of flue *16"* Material of flue plates *steel* Thickness *19/32"*

End plates: Thickness *3/4"* How stayed *as approx*

Working pressure of end plates *175 lb* Area of safety valves to superheater *as approx* Are they fitted with easing gear *yes*

DONKEY BOILER— 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 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 _____
 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:— I.P. valve spindle. Pair con. rod brasses. Air pump bucket, rod head valve seat & guard, 1 set valves. Centrifugal spindle & impeller. 2 main bearing bolts & nuts. 2 top end & two bottom end con. rod bolts & nuts. Set coupling bolts. 2 propeller blades & 8 studs & nuts. Set crosshead brasses. Set pump link brasses. Cyl. escape valve & spring. Eccentric strap. Set piston & rings. The foregoing is a correct description, 6 shaft ring bolts. 6 cyl cover bolts. 4 valve chest bolts. Set feed & bridge pump valves & nuts. Set spring for safety & escape valves. 8 propeller studs & nuts. Set feed check valves. 10 boiler tubes assorted bolts & nuts.

Horland M. & Co. Ltd. Manufacturer.

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

The machinery of this vessel has been constructed under special survey throughout & in accordance with the approved drawings of the boilers herewith returned.

The workmanship is good throughout. The steel has been tested as the Rules require, & each of the boilers & each separate length of main steam pipe have been tested by water pressure to double the working pressure.

The safety valves of the starboard boiler & of the after middle boiler are adjusted to blow off at 175 lbs per sq inch. It is arranged that the valves of the remaining two boilers shall be adjusted in London where the vessel proceeds to load.

The vessel is lighted throughout by electricity; the particulars will be forwarded on the usual form shortly.

The machinery, in my opinion, renders the vessel eligible for the record of **+ L.M.C. 4.92** in the Register Book

This report to be handed to the Local Engineer Surveyor for his guidance in completing this survey & also to note if there is a defect in the boiler or engine.

It is submitted that this vessel WILL BE eligible for the record + L.M.C. 4.92 where the safety valves of the remaining two main boilers have been adjusted under steam.

Certificate (if required) to be sent to _____

The amount of Entry Fee.. £ 3 - 0 - 0

Special R. .. £ 50 : 0 : 0

Donkey Boiler Fee .. £ : : :

Travelling Expenses (if any) £ : : :

When applied for,

11th Apr 1892

When received,

12/4/92

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

Committee's Minute

THURS. 14 APL 1892

TUES. 26 APL 1892

Assigned

+ L.M.C. 4.92



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