

REPORT ON MACHINERY.

27 MAR 1895

No. 4475

Port of *Belfast*

Received at London Office **WED. 27 MAR 1895**

No. in Survey held at *Belfast*
Reg. Book.

Date, first Survey *June 28th 1894* Last Survey *March 21st 1895*
(Number of Visits *36*)

on the *Steel screw steamer "Star of New Zealand"*

Tons { Gross *4712*
Net *3037*

Master *John Simpson* Built at *Belfast*

By whom built *Workman Clark & Co. Ltd.*

When built *1895*

Engines made at *Belfast*

By whom made *Workman Clark & Co. Ltd.*

when made *1895*

Boilers made at

By whom made

when made

Registered Horse Power *500*

Owners *"Star of New Zealand" S.S. Co. Ltd.*

Port belonging to *Belfast*

Nom. Horse Power as per Section 28 *394*

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

Diameter of Cylinders *26 1/2 : 44 : 73* Length of Stroke *48* Revolutions per minute *65* Diameter of Screw shaft *as per rule 13.2*
as fitted 12.56 Diameter of Crank shaft journals *14"* Diameter of Crank pin *14"* Size of Crank webs *20 1/2 x 9 1/2*

Diameter of Tunnel shaft *as fitted 13 1/2"* Diameter of Crank shaft journals *14"* Diameter of Crank pin *14"* Size of Crank webs *20 1/2 x 9 1/2*

Diameter of screw *14' 6"* Pitch of screw *18' 6"* No. of blades *4* State whether moveable *yes* Total surface *90 sq. ft.*

No. of Feed pumps *two* Diameter of ditto *4"* Stroke *27"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *two* Diameter of ditto *4 1/2"* Stroke *27"* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *three* Sizes of Pumps *E.R. donkey 6 x 4 x 6* No. and size of Suctions connected to both Bilge and Donkey pumps
weirs duplex 7 x 8 x 21 In Holds, &c. *No 1 hold, two 3 1/2". No 2 hold, two 3 1/2".*
Ballast duplex 7 x 8 x 9

In Engine Room *three 3 1/2"* Tunnel well suction *3 1/2"*

No. of bilge injections *1* sizes *7/8"* Connected to condenser, or to circulating pump *circ. 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*

What pipes are carried through the bunkers *none; (carried inside tanks)* How are they protected *✓*

Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible *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 *upper E. R. Gratings.*

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *6270*

No. and Description of Boilers *Three single-ended* Working Pressure *180 lb* Tested by hydraulic pressure to *360*

Date of test *19/1/95* Can each boiler be worked separately *yes* Area of fire grate in each boiler *50.8* No. and Description of safety valves to each boiler *Two Adams patent* Area of each valve *8.29* Pressure to which they are adjusted *185 lb* Are they fitted with easing gear *yes* Smallest distance between boilers or uptakes and bunkers or woodwork *several feet* Mean diameter of boilers *13' 3"*

Length *11' 6"* Material of shell plates *steel* Thickness *1 1/4"* Description of riveting: circum. seams *middle triple, end double.* long. seams *double straps*

Diameter of rivet holes in long. seams *1 5/16* Pitch of rivets *9" x 4 1/2"* Top of plates or width of butt straps *19 3/16 x 3 1/32*

Per centages of strength of longitudinal joint *89.25* Working pressure of shell by rules *193* Size of manhole in shell *16 x 12*

Size of compensating ring *2' 4" x 2' 0" x 7/8"* No. and Description of Furnaces in each boiler *3 Morrison* Material *steel* Outside diameter *41"*

Length of plain part *top 17 1/2"* Thickness of plates *bottom 17 1/2"* Description of longitudinal joint *welded* No. of strengthening rings *✓*

Working pressure of furnace by the rules *199* Combustion chamber plates: Material *steel* Thickness: Sides *9/16* Back *9/16* Top *9/16* Bottom *3/4*

Pitch of stays to ditto: Sides *7 3/4 x 6* Back *7 3/4* Top *7 3/4 x 6* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *182*

Material of stays *steel* Diameter at smallest part *1 3/8 x 1 1/2* Area supported by each stay *60.772* Working pressure by rules *196* End plates in steam space:

Material *steel* Thickness *1 1/16* Pitch of stays *15 1/4 x 14 1/4* How are stays secured *double nuts small washers* Working pressure by rules *230* Material of stays *steel*

Diameter at smallest part *2 3/8* Area supported by each stay *225* Working pressure by rules *182* Material of Front plates at bottom *steel*

Thickness *7/8* Material of Lower back plate *steel* Thickness *23/32* Greatest pitch of stays *as appr.* Working pressure of plate by rules *180*

Diameter of tubes *2 1/2* Pitch of tubes *3 7/8 x 3 7/8* Material of tube plates *steel* Thickness: Front *7/8* Back *3/4* Mean pitch of stays *7 1/2*

Pitch across wide water spaces *14 1/8 x 10 1/2* Working pressures by rules *180 lb* Girders to Chamber tops: Material *steel* Depth and thickness of girder at centre *7 5/8 x 1 1/2* Length as per rule *26 1/2* Distance apart *7 3/4* Number and pitch of Stays in each *three at 6"*

Working pressure by rules *205* 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 holes *✓*

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

If stiffened 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 *✓*

BEL64-0193

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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:— *Two steel propeller blades. Two top & two bottom-end bolts & nuts. Two main bearing bolts & nuts. 2 eccentric strap bolts & nuts. 6 coupling bolts & nuts. 12 cond. tubes. 2 feed & 2 bilge pump valves. 2 Cy. escape valves & pump. Feed escape valve & pump. 2 Safety valve & pump. Pair crank pin bushes. Pair piston rod bushes. Pump rod. 2 S.V. spindles. 6 propeller studs & nuts. 12 pump ring bolts & nuts. 2 Cr. pump guards & studs. Manufacturer. 2 A.P. guards & nuts. Studs for glands & covers. 100 fire bars. Assorted bolts etc.*
 The foregoing is a correct description,
THE WORKMAN, CLARK & CO., LIMITED
M. S. Bell

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery has been built under special survey; the boilers in accordance with the approved tracing, & of steel tested as required at the Steel Works. The workmanship is good throughout. The boilers & each length of main steam pipe have been tested by water to double the working pressure. Forced draught is supplied to the furnaces on the Howden system. The vessel ran a satisfactory trial trip in the Belfast Lough on the 21st inst. Accompanying this report are photo prints of boilers, & engine room pumping arrangements, tracing of hold pumping arrangements, & certificate for shaft forgings. The machinery in my opinion renders the vessel eligible for the notification + L.M.C. 3.95 to be recorded.*

It is submitted that
 this vessel is eligible for
 THE RECORD + L.M.C. 3-95

W.A.
 27.3.15

Certificate (if required) to be sent to _____

The amount of Entry Fee.. £ 3 : 0 :
 Special £ 39 : 14 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : 5 :
 When applied for, 23rd Mar 1895
 When received, 24/1895

Edm.
 3

A. L. Jones

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

Committee's Minute

FRIDAY 29 MAR 1895

Assigned

+ L.M.C. 3, 95



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