

## REPORT ON MACHINERY.

Port of *Sunderland*

Received at London Office

JULY 23 SEP 1902

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

Date, first Survey

*6<sup>th</sup> Feb'y*

Last Survey

*6<sup>th</sup> Sept 1902*(Number of Visits *20*)on the s/s. *"Madawaska"*Master *J. D. Jenkins*Built at *Sunderland*

By whom built

*J. L. Thompson & Sons Ltd*When built *1902*Engines made at *Sunderland*

By whom made

*John Dickinson & Sons Ltd*when made *1902*Boilers made at *Sunderland*

By whom made

*John Dickinson & Sons Ltd*when made *1902*

Registered Horse Power

Owners *North Atlantic s/s Co Ltd*Port belonging to *Bristol*Nom. Horse Power as per Section 28 *362*Is Refrigerating Machinery fitted *no*Is Electric Light fitted *no*

## ENGINES, &amp;c.—Description of Engines

*Triple Expansion*No. of Cylinders *3*No. of Cranks *3*

Dia. of Cylinders *25"-42"-68"* Length of Stroke *48"* Revs. per minute *70* Dia. of Screw shaft as per rule *14.2.3* as fitted *15.3.4* Lgth. of stern bush *5-4 1/4"*  
 Dia. of Tunnel shaft as per rule *12.7.5* as fitted *13.3.4* Dia. of Crank shaft journals as per rule *13.3.38* as fitted *14* Dia. of Crank pin *14 1/2"* Size of Crank webs *actual* Dia. of thrust shaft under collars *14 1/2"* Dia. of screw *17.6* Pitch of screw *18.3* No. of blades *4* State whether moveable *no* Total surface *84 1/2 sq ft*

No. of Feed pumps *2* Diameter of ditto *4"* Stroke *24"* Can one be overhauled while the other is at work *yes*No. of Bilge pumps *2* Diameter of ditto *4 1/2"* Stroke *24"* Can one be overhauled while the other is at work *yes*No. of Donkey Engines *4* Sizes of Pumps *2 Duplex 6x4x6* No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room *2 of 3 1/2 port wing* *2 Ballast 8x9x10* In Holds, &c. *2 of 3 1/2 each hold*No. of bilge injections *1* sizes *4* Connected to *main* or to circulating pump *CP* Is a separate donkey suction fitted in Engine room & size *2 of 4"*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 *yes*Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *both*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 *above*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* How are they protected *yes*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 *never* Is the screw shaft tunnel watertight *yes*Is it fitted with a watertight door *yes* worked from *top platform*

## BOILERS, &amp;c.—

(Letter for record *S*)Total Heating Surface of Boilers *5778 sq ft*Is forced draft fitted *no*No. and Description of Boilers *3. S.E. G.L. Multitubular* Working Pressure *180 lb* Tested by hydraulic pressure to *360 lb*Date of test *30.8.02* Can each boiler be worked separately *yes* Area of fire grate in each boiler *57.33 sq ft* No. and Description of safety valves to each boiler *two-direct spring* Area of each valve *7.56"* 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 *18"* Mean dia. of boilers *14'-6"* Length *11'-0"* Material of shell plates *steel*Thickness *1 3/16* Range of tensile strength *28 tons* Are they welded or flanged *no* Descrip. of riveting: cir. seams *2 Riv Lap* long. seams *2 Riv Shop*Diameter of rivet holes in long. seams *1 9/16* Pitch of rivets *8 3/4"* Lap or plates or width of butt straps *19 1/4"*Per centages of strength of longitudinal joint rivets *96.8* Working pressure of shell by rules *180 lb* Size of manhole in shell *16" x 12"*Size of compensating ring *8 7/8 x 1 3/16* No. and Description of Furnaces in each boiler *3 furnaces* Material *steel* Outside diameter *3'-8"*Length of plain part top *12* Thickness of plates crown *32* Description of longitudinal joint *weld* No. of strengthening rings *yes*Working pressure of furnace by the rules *183 lb* Combustion chamber plates: Material *steel* Thickness: Sides *11/16* Back *11/16* Top *11/16* Bottom *13/16*Pitch of stays to ditto: Sides *10 1/4 x 8 1/2* Back *9 3/4 x 9 1/4* Top *10 x 9* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *181 lb*Material of stays *steel* Diameter at smallest part *2.03"* Area supported by each stay *9 3/4 x 9 1/4* Working pressure by rules *203* End plates in steam space:Material *steel* Thickness *1 1/8"* Pitch of stays *19 1/8 x 17* How are stays secured *2 nuts* Working pressure by rules *183 lb* Material of stays *steel*Diameter at smallest part *6.10"* Area supported by each stay *19 1/8 x 17* Working pressure by rules *188* Material of Front plates at bottom *steel*Thickness *7/8* Material of Lower back plate *steel* Thickness *2 1/2* Greatest pitch of stays *13 1/8 x 9 3/4* Working pressure of plate by rules *184 lb*Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2"* Material of tube plates *steel* Thickness: Front *1* Back *7/8* Mean pitch of stays *9"*Pitch across wide water spaces *14 1/8* Working pressures by rules *180 lb* Girders to Chamber tops: Material *steel* Depth andthickness of girder at centre *7 3/4 x 1 x (2)* Length as per rule *32 7/16* Distance apart *9"* Number and pitch of Stays in each *2 of 10" pitch*Working pressure by rules *183 lb* Superheater or Steam chest; how connected to boiler *none* 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



## DONKEY BOILER—

No.

Description

None fitted —

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

Dia. of donkey boiler

Length

Material of shell plates

Thickness

Range of tensile

strength

Descrip. of riveting long seams

Dia. of rivet holes

Whether punched or drilled

Pitch of rivets

Lap of plating

Per centage of strength of joint

Rivets

Plates

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 top end bolts and nuts, two bottom end bolts and nuts, two main bearing bolts and nuts Spare coupling bolts and nuts Spare feed & high pump valves, assorted iron bolts and nuts Spare propeller, Spare Tail end shaft—

The foregoing is a correct description,

John Dickinson &amp; Sons, Limited.

Manufacturer.

Dates  
of Survey  
while  
building

During progress of  
work in shops - -  
During erection on  
board vessel - -  
Total No. of visits

20

Director

1902. - Feb'y 6. 11. 26 Mar. 8. 10. 18. Apr. 15. 21. May 13. June 13.  
July 5. 21. Aug<sup>st</sup> 25. 26. 30. Sept. 1. 2. 4. 5. 6.

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

## General Remarks

(State quality of workmanship, opinions as to class, &amp;c.)

Material of screw shaft Wrot Iron Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes

Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes

The machinery built under Special Survey, the material and workmanship found good and efficient. The main boiler and steam pipes tested under hydraulic pressure to 360 lb per square inch and found sound and efficient in every respect at that pressure.

The Engines tried under steam at their working pressures and found satisfactory.

In my opinion this vessel is worthy of the notification of 1st Class to be made in the Register Book—

It is submitted that  
this vessel is eligible for  
THE RECORD.

+ LMB 9.02

The amount of Entry Fee..

£ 3 :

When applied for,

22.9.02

Special

£ 38 :

2 :

When received,

24.9.02

Donkey Boiler Fee

£ :

Travelling Expenses (if any) £ :

24.9.02  
Leonard & Thacker  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 26 SEP 1902

Assigned

+ LMB 9.02

MACHINERY CERTIFICATE  
WRITTEN.



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Foundation