

## REPORT ON MACHINERY.

No. 21764

Hdb No 3848

Port of Sunderland

Received at London Office

THUR. 28 APR 1904

No. in Survey held at  
Reg. Book.

Date, first Survey

Last Survey

13th January 1904

8th April 1904

28 Supp. on the

Steel S.S. "White Sea"

(Hdb) 10th March

Number of Visits 22

Hdb 5

Gross 1922.98

Net 1222.95

When built 1904

Master J. Stephens Built at HobokenBy whom built Craig, Taylor & CoEngines made at Sunderland

By whom made

North Eastern Marine Eng Co Ltd

when made 1904

Boilers made at Sunderland

By whom made

North Eastern Marine Eng Co Ltd

when made 1904

Registered Horse Power

Owners Danders Wake & CoPort belonging to London

Nom. Horse Power as per Section 28

210

Is Refrigerating Machinery fitted

No

Is Electric Light fitted

No

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

Tri-compound

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 21"-35"-57"Length of Stroke 39"Revs. per minute 65

Dia. of Screw shaft

as per rule 12.56"Material of W. S.

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

No

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

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

If two

liners are fitted, is the shaft lapped or protected between the liners

Length of stern bush 4'-3"

Dia. of Tunnel shaft

as per rule 10.15"

Dia. of Crank shaft journals

as per rule 10.65"Dia. of Crank pin 10.34"Size of Crank webs 17x6 1/2"

Dia. of thrust shaft under

collars 10.34"Dia. of screw 15'-6"Pitch of screw 15'-6"No. of blades 4

State whether moveable

No

Total surface 746No. of Feed pumps 2Diameter of ditto 3"Stroke 1'-9"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps 2Diameter of ditto 3 1/2"Stroke 1'-9"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines 2

Sizes of Pumps

Std 5x3x4 1/2"Ballast 6x7x9"

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

Three 3" + one 3 1/2"In Holds, &c. Two 3" in each holdNo. of bilge injections 1sizes 4"

Connected to condenser, or to circulating pump

B. P.

Is a separate donkey suction fitted in Engine room &amp; 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

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

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

New vessel

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

32486

Is forced draft fitted

No

No. and Description of Boilers

Two cylindrical multitubular

Working Pressure

160 lbs

Tested by hydraulic pressure to

320 lbs

Date of test 12/3/04 Can each boiler be worked separately

Yes

Area of fire grate in each boiler

476

No. and Description of safety valves to

each boiler

Two spring loaded

Area of each valve

5.93"

Pressure to which they are adjusted

165 lbs

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

15"

Mean dia. of boilers

13'-7 1/2"

Length

10'-0"

Material of shell plates

Steel

Thickness

1 1/2"

Range of tensile strength 28 3/4-32 Are they welded or flanged

No

Descrip. of riveting: cir. seams

D. R. L.

long. seams

D. R. D. B. S.

Diameter of rivet holes in long. seams

1 1/4"

Pitch of rivets

6 1/2"

Top of plates

width of butt straps

13"

Per centages of strength of longitudinal joint

rivets 81.7plate 80.76

Working pressure of shell by rules

160.7 lbs

Size of manhole in

16" x 12"

Size of compensating ring

Flanged

No. and Description of Furnaces in each boiler

3 plain

Material

Steel

Outside diameter

3'-3"

Length of plain part

top 6'-2 1/2"bottom 6'-2 1/2"

Thickness of plates

crown 1 1/4"bottom 1 1/4"

Description of longitudinal joint

Welded

No. of strengthening rings

Working pressure of furnace by the rules

167.5 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

2 1/32"

Back

2 1/32"

Top

2 1/32"

Bottom

1"

Pitch of stays to ditto: Sides

10 1/4" x 9"

Back

9 1/2" x 9 3/8"

Top

10 1/4" x 9"

If stays are fitted with nuts or riveted heads

No

Working pressure by rules

160 lbs

Material of stays

Steel

Diameter at smallest part

1.79"

Area supported by each stay

92.25"

Working pressure by rules

174.5 lbs

End plates in steam space:

Material

Steel

Thickness

1 1/2"

Pitch of stays

20" x 18 3/8"

How are stays secured

D N + W

Working pressure by rules

162 lbs

Material of stays

Steel

Diameter at smallest part

6.1"

Area supported by each stay

367.5"

Working pressure by rules

165.9 lbs

Material of Front plates at bottom

Steel

Thickness

3/4"

Greatest pitch of stays

14 1/4" x 9 3/8"

Working pressure of plate by rules

189 lbs

Diameter of tubes

3 1/2"

Pitch of tubes

4 3/4" x 4 1/2"

Material of tube plates

Steel

Thickness: Front

3/4"

Back

3/4"

Mean pitch of stays

9 1/2" x 9"

Pitch across wide water spaces

14 1/2"

Working pressures by rules

192.5 lbs

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

7 1/2" x 11 x 2

Length as per rule

30.5"

Distance apart

10 1/2"

Number and pitch of Stays in each

2 of 9"

Working pressure by rules

165.5 lbs

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

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

No



**DONKEY BOILER—** No. *One* Description *Patent Vertical*  
 Made at *Amman* By whom made *Bochman & Co.* When made *1904* Where fixed *Household*  
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *6978* Fire grate area *2 1/2* Description of safety valves *Direct Spring*  
 No. of safety valves *2* Area of each *5.94* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *6'-6"* Length *13'-6"* Material of shell plates *Steel* Thickness *1/2"* Range of tensile strength *27-32* Descrip. of riveting long. seams *double* Dia. of rivet holes *27/32"* Whether punched or drilled *drilled* Pitch of rivets *2 1/2"*  
 Lap of plating *4 1/8"* Per centage of strength of joint *76* Rivets *76* Thickness of shell crown plates *7/16"* Radius of do. *3'-3"* No. of Stays to do. *None*  
 Dia. of stays. *1 1/2"* Diameter of furnace Top *2'-7 1/2"* Bottom *2'-7 1/2"* Length of furnace *13'-6"* Thickness of furnace plates *19/32"* Description of joint *inverted* Thickness of furnace crown plates *19/32"* Stayed by *None* Working pressure of shell by rules *105 lbs.*  
 Working pressure of furnace by rules *101 lbs.* Diameter of tubes *2 1/2"* Thickness of tube plates *13/16" + 23/32"* Thickness of stay tubes *1/4"*

**SPARE GEAR.** State the articles supplied:— *Two top + two bottom end bolts + nuts, two main bearing bolts + nuts, set of coupling bolts, set of feed + bilge pump valves, propeller + assorted bolts, nuts + washers.*

The foregoing is a correct description,

**NORTH EASTERN MARINE ENGINEERING CO. LTD.**

Manufacturer.

*Malcolm Deatherbury*

Dates of Survey while building  
 During progress of work in shops - *1904 - Jan. 13, 18, 20, 22, 26, 28, 30. Feb. 4, 8, 12, 14, 22, 29. Mar. 3, 7, 11, 12*  
 During erection on board vessel - *29, 30, 31, Apr. 6, 8 (Mdb) 1904 Mar. 10-15. Apr. 13-15-18*  
 Total No. of *(Mdb) 22 Mdb 5* Is the approved plan of main boiler forwarded herewith *yes.*  
 " " " donkey " " " *no.*

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

*The machinery of this vessel has been constructed under Special Survey, the materials + workmanship are of good quality. Boiler + main steam pipes have been tested by hydraulic pressure to double the working pressure, the whole tried satisfactorily under steam + the safety valves adjusted as stated above.*

*In our opinion this vessel is eligible to be classed in the Register Book with the mark of* **L.M.C. 4-04**

*It is submitted that this vessel is eligible for*  
**THE RECORD L.M.C. 4.04**

*Wm. S. 28.4.04*  
*28.4.04*

The amount of Entry Fee £ *2* : : When applied for, *13.4.1904*  
 Special £ *30* : *10* : :  
 Donkey Boiler Fee £ : : : When received, *24.4.1904*  
 Travelling Expenses (if any) £ : : : *at sea*

*G. Williamson + R.D. Shilston*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

**FRI. 29 APR 1904**

Assigned

*+ L.M.C. 4.04*

MACHINERY CERTIFICATE  
 WRITTEN.



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 Foundation