

## REPORT ON MACHINERY

No. 25178

TUE. MAR. 19. 1912

Received at London Office

Date of writing Report

19

When handed in at Local Office

14. 3. 1912

Port of

Sunderland

No. in Survey held at  
Reg. Book.

on the

Sunderland  
88 "Wyrishbrook"

Date, First Survey

17 August

Last Survey

5 March 1912

(Number of Visits)

Master

McWilliam

Built at

Sunderland

By whom built

J. Blumers &amp; Co

10210

Tons

Gross

3158

Net

1964

When built

1912

Engines made at

Sunderland

By whom made

North Eastern Marine Eng Co Ltd (2033C)

when made

1912

Boilers made at

Sunderland

By whom made

North Eastern Marine Eng Co Ltd

when made

1912

Registered Horse Power

Owners

Brook &amp; Co (Heller &amp; Richards)

Port belonging to

Glasgow

Nom. Horse Power as per Section 28

284

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

no

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

Triple expansion

No. of Cylinders

Three

No. of Cranks

Three

Dia. of Cylinders

23" x 38" x 61"

Length of Stroke

42"

Revs. per minute

69

Dia. of Screw shaft

as per rule 13.08

Material of

Ingot Steel

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

Length of stern bush

4'-4 1/2"

Dia. of Tunnel shaft

as per rule 11.42

Dia. of Crank shaft journals

as per rule 12.05

Dia. of Crank pin

12 1/8"

Size of Crank webs

18 1/2" x 1 1/2"

Dia. of thrust shaft under

collars

collars

12 1/8"

Dia. of screw

16'-3"

Pitch of Screw

16'-0"

No. of Blades

4

State whether moveable

no

Total surface

81 sq

No. of Feed pumps

2

Diameter of ditto

3 1/4"

Stroke

21"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

4"

Stroke

21"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

2

Sizes of Pumps

1 1/4" x 9" x 10"

6" x 4" x 6"

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

In Engine Room

Three @ 3" dia.

In Holds, &amp;c.

No. 1, 2 @ 3" dia.; No. 2, 2 @ 3" dia.

No. of Bilge Injections

1 size

4"

Connected to condenser, or to circulating pump

C.P.

Is a separate Donkey Suction fitted in Engine room &amp; 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

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

Dates of examination of completion of fitting of Sea Connections

24-1-12

of Stern Tube

20-2-12

Screw shaft and Propeller

20-2-12

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)

Manufacturers of Steel

J. Spencer &amp; Sons Ltd

Total Heating Surface of Boilers

4400

Is Forced Draft fitted

no

No. and Description of Boilers

Two single ended

Working Pressure

180 lbs

Tested by hydraulic pressure to

360 lbs

Date of test

20-12-11

No. of Certificate

2948

Can each boiler be worked separately

yes

Area of fire grate in each boiler

58 sq

No. and Description of Safety Valves to

each boiler

Two direct spring

Area of each valve

5.94 sq

Pressure to which they are adjusted

185 lbs

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

24"

Mean dia. of boilers

15'-9 1/2"

Length

10'-6"

Material of shell plates

Steel

Thickness

1 3/8"

Range of tensile strength

28 3/4 - 32 tons

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

D.R.

long. seams

T.R.D.B.S.

Diameter of rivet holes in long. seams

1 3/8"

Pitch of rivets

9 1/8"

Lap of plates or width of butt straps

20 1/2"

Per centages of strength of longitudinal joint

rivets 84.6

plate 86.4

Working pressure of shell by rules

180 lbs

Size of manhole in shell end

16" x 12"

Size of compensating ring

dished

No. and Description of Furnaces in each boiler

Three Corrugated

Material Steel

Outside diameter

44 1/2"

Length of plain part

top

bottom

Thickness of plates

crown 9 1/8"

bottom 9 1/8"

Description of longitudinal joint

weld.

No. of strengthening rings

Working pressure of furnace by the rules

185 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

3/4"

Back

1 1/2"

Top

3/4"

Bottom

Pitch of stays to ditto: Sides

8 1/8" x 11 1/8"

Back

11 3/8" x 10 1/8"

Top

8 1/8" x 11 1/8"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

180 lbs

Material of stays

Steel

Diameter at smallest part

1 1/2"

Area supported by each stay

102 sq

Working pressure by rules

184 lbs

End plates in steam space:

Material

Steel

Thickness

1 3/8"

Pitch of stays

22 1/2" x 21 1/4"

How are stays secured

D. Nuts &amp; W.

Working pressure by rules

182 lbs

Material of stays

Steel

Diameter at smallest part

3.28"

Area supported by each stay

490 sq

Working pressure by rules

180 lbs

Material of Front plates at bottom

Steel

Thickness

3/4"

Material of Lower back plate

Steel

Thickness

1 1/2"

Greatest pitch of stays

15' x 10 1/2"

Working pressure of plate by rules

181 lbs

Mean pitch of stays

10.5"

Diameter of tubes

3 1/4"

Pitch of tubes

4 3/4" x 4 3/8"

Material of tube plates

Steel

Thickness: Front

3/4"

Back

3/4"

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

8' x 2 1/2"

Length as per rule

31.4"

Distance apart

11 1/8"

Number and pitch of stays in each

2 @ 8 1/8"

Working pressure by rules

180 lbs

Superheater or Steam chest; how connected to boiler

none

Can the superheater be shut off and the boiler worked

separately

yes

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

holes

Pitch of rivets

Working pressure of shell by rules&lt;/



# VERTICAL DONKEY BOILER

Manufacturers of Steel

No.	Description	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	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	Date of adjustment	Dia. of donkey boiler
Material of shell plates	Thickness	Range of tensile strength	Length
Dia. of rivet holes	Whether punched or drilled	Descrip. of riveting long. seams	Rivets
Working pressure of shell by rules	Thickness of shell crown plates	Lap of plating	Per centage of strength of joint
Diameter of furnace Top	Length of furnace	Radius of do.	No. of stays to do.
Working pressure of furnace by rules	Thickness of furnace crown plates	Radius of do.	Dia. of stays
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Stays by
		Dates of survey	

**SPARE GEAR.** State the articles supplied:— One Tail shaft, One propeller, Two each bolts nuts for top & bottom ends & main bearings, One set of coupling bolts nuts, valves for all pumps, assorted bolts, nuts & wire.

The foregoing is a correct description,

NORTH EASTERN MARINE ENGINEERING CO LTD

Manufacturer.

Dates of Survey while building	During progress of work in shops --	1911 Aug 17, Sep 4, 13, 28, 30, Nov 2, 6, 9, 14, 17, 23, 30, Dec 4, 9, 12, 15, 18, 20
	During erection on board vessel --	1912 Jan 3, 4, 10, 12, 17, 18, 23, 24, 29, 31, Feb 10, 12, 23, 27, 28, March 5
Total No. of visits		(35)

Is the approved plan of main boiler forwarded herewith

yes. ✓  
yes. ✓

Dates of Examination of principal parts—Cylinders	14-11-11	Slides	3-1-12	Covers	14-11-11	Pistons	3-1-12	Rods	28-9-11
Connecting rods	12-12-11	Crank shaft	1-12-11	Thrust shaft	14-1-12	Tunnel shafts	30-10-11	Screw shaft	12-1-12
Stern tube	29-1-12	Steam pipes tested	22-2-12	Engine and boiler seatings	24-1-12	Engines holding down bolts	23-2-12		
Completion of pumping arrangements	23-2-12	Boilers fixed	23-2-12	Engines tried under steam	28-2-12				
Main boiler safety valves adjusted	28-2-12	Thickness of adjusting washers	630-1-3-4-5 M.B. 6-11 M.B.						
Material of Crank shaft	Steel	Identification Mark on Do.	3293 H.K.	Material of Thrust shaft	Steel	Identification Mark on Do.	640 M.B.		
Material of Tunnel shafts	Steel	Identification Marks on Do.	449 M.B. 404 M.B. 405 M.B. 410-11 M. 4108 J.M.	Material of Screw shafts	Steel	Identification Marks on Do.	403 M.B. 404 M.B.		
Material of Steam Pipes	Solid drawn copper. 4 3/4" bore x 6 W.B.	Test pressure	400 lbs.						

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

The machinery of this vessel has been built under special survey the materials and workmanship are of good quality and the hydraulic test on the boilers proved satisfactory. The whole of the machinery has been securely fitted on board & satisfactorily tried under steam and is in good & safe working condition & eligible in my opinion to be classed and have record. **LMC 3-12** in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + LMC 3.12.

The amount of Entry Fee	£ 2 :- -	When applied for,	18. 1. 1912
Special	£ 34 . 4 0	When received,	2. 3. 1912
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

Committee's Minute

FRI. MAR 23 1912

Assigned

+ LMC 3.12

MAINTENANCE CERTIFICATE

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



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Rpt. 5a.

Date of writing Report

No. in Survey Reg. Book.

on the

Master *McW*

Engines made at

Boilers made at

Registered Horse

MULTITUBU

(Letter for record

Boilers one

No. of Certificate

safety valves to ea

Are they fitted wit

Smallest distance

Material of shell

Descrip. of rivetin

Lap of plates

rules 123

boiler 2 pl

Description of long

plates: Material

Top 8 1/2 x 9 1/2 If s

smallest part 1 1/4

Pitch of stays 14 3/4

Area supported by

Lower back plate

Pitch of tubes 4

water spaces 13

girder at centre 2

Working pressure

separately

holes Pitch

If stiffened with r

Working pressure

GENERAL

The me

The foil

It has been

been adj

Survey Fee

Travelling Ex

Committee's

Assigned