

## REPORT ON MACHINERY.

NEWCASTLE-ON-TYNE

No. 7824

TUE. MAR. 25. 1913

Date of writing Report

19

When handed in at Local Office

10.3.13

Received at London Office

10

Port of

MIDDLESBROUGH-ON-TEES

No. in Survey held at  
Reg. Book.

Stockton-on-Tees

Date, First Survey

1st Feb. 1912

Last Survey

1st April 1912

76 huff on the Steel screw steamer "Hannah"

(Number of Visits)

3697

Master

Built at Newcastle

By whom built

Tynes Iron &amp; Steel Co. Ltd.

When built

1913

Engines made at

Stockton

By whom made

Thos. Blair &amp; Co. Ltd. (No. 1752)

when made

1913

Boilers made at

Stockton

By whom made

Thos. Blair &amp; Co. Ltd.

when made

1913

Registered Horse Power

Owners J. Rahtkens &amp; Co.

Port belonging to Middlesbrough

Nom. Horse Power as per Section 28

348

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

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

Tri-compound

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

25-42-68

Length of Stroke

45

Revs. per minute

57

Dia. of Screw shaft

as per rule 13.27

Material of

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 in one

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

tight fit

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

Length of stern bush

5-1 7/8

Dia. of Tunnel shaft

as per rule 12.46

as fitted 13 1/4

Dia. of Crank shaft journals

as per rule 13.09

as fitted 13 1/4

Dia. of Crank pin

14 1/4

Size of Crank webs

27 1/2 x 9 1/4

collars

14 1/4

Dia. of screw

17-0

Pitch of Screw

17-6

No. of Blades

4

State whether moveable

no

Total surface

92 sq

No. of Feed pumps

2

Diameter of ditto

3 1/4

Stroke

33

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

4 3/4

Stroke

33

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

2

Sizes of Pumps

Ballast 9 x 15  
Feed 4 x 8

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

In Engine Room

3 @ 3 1/2 + dry tank 1 @ 3 1/2

In Holds, &amp;c.

2 @ 3 1/2 in No. 1, 2 + 3 holds;

1 @ 3 1/2 + 2 @ 3 in No. 4 hold: Fannell with one @ 2 1/4

No. of Bilge Injections

1

sizes

6 1/4

Connected to condenser, or to circulating pump

yes

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

yes-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

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

fire hold

How are they protected

same ceiling

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

19.2.13

of Stern Tube

19.2.13

Screw shaft and Propeller

5.3.13

Is the Screw Shaft Tunnel watertight

see hull rpt

Is it fitted with a watertight door

yes

worked from top platform

## BOILERS, &amp;c.—(Letter for record (0))

Manufacturers of Steel

Messrs John G. Jones &amp; Sons

Total Heating Surface of Boilers

5506

Is Forced Draft fitted

no

No. and Description of Boilers

2 single ended

Working Pressure

180

Tested by hydraulic pressure to

360

Date of test

2.12.12

No. of Certificate

4991

Can each boiler be worked separately

yes

Area of fire grate in each boiler

69 3/4 sq

No. and Description of Safety Valves to

each boiler

2 direct spring

Area of each valve

8.29

Pressure to which they are adjusted

185

Are they fitted with easing gear

yes

Smallest distance between boilers on uptakes and bunkers or woodwork

2-6

Mean dia. of boilers

16-6

Length

11-6

Material of shell plates

steel

Thickness

1 1/2

Range of tensile strength

28-32

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

2 R. lap

long. seams

28-3 Riv

Diameter of rivet holes in long. seams

1 1/2

Pitch of rivets

9 5/8

Lap of plates or width of butt straps

20 1/2 x 1 1/4

Per centages of strength of longitudinal joint

rivets 87.4

plate 85.7

Working pressure of shell by rules

183

Size of manhole in shell

16" x 12"

Size of compensating ring

7 3/4 x 1 1/2

No. and Description of Furnaces in each boiler

3 Brighton

Material

steel

Outside diameter

50 1/2

Length of plain part

top 186

Thickness of plates

bottom 164

Description of longitudinal joint

Weld

No. of strengthening rings

21

Working pressure of furnace by the rules

186

Combustion-chamber plates: Material

steel

Thickness: Sides

31/32

Back

31/32

Top

31/32

Bottom

31/32

Pitch of stays to ditto: Sides

9 5/8 x 8 1/4

Back

8 5/8 x 9 1/4

Top

9 1/2 x 8 1/4

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

186

Material of stays

steel

Diameter at smallest part

1.59

Area supported by each stay

79.5

Working pressure by rules

225

End plates in steam space:

Material

steel

Thickness

1 3/4

Pitch of stays

20 1/2 x 1 1/4

How are stays secured

nuts

Working pressure by rules

188

Material of stays

IRON

Diameter

at smallest part

10.3

Area supported by each stay

399

Working pressure by rules

194

Material of Front plates at bottom

steel

Thickness

1"

Material of Lower back plate

steel

Thickness

1 1/2

Greatest pitch of stays

14 1/2 x 9 1/4

Working pressure of plate by rules

210

Diameter of tubes

3 1/2

Pitch of tubes

4 3/4 x 4 3/8

Material of tube plates

steel

Thickness: Front

1 1/2

Back

1 1/2

Mean pitch of stays

10 3/2

Pitch across wide water spaces

14 1/2

Working pressures by rules

192

Girders to Chamber tops: Material

steel

Depth and

thickness of girder at centre

8 1/4 x 2"

Working pressure by rules

187

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



VERTICAL DONKEY BOILER— *Manufacturers of Steel See Middlesbrough Report No. 7642*

No. *one* Description *Horace patent*  
 Made at *Stockton* By whom made *Wm. H. H. & Co.* When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_  
 Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_  
 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 \_\_\_\_\_  
 Working pressure of shell by rules \_\_\_\_\_ 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 \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *2 top & 2 bottom end bolts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of fuel and bilge pump valves, a quantity of assorted bolts nuts and iron, 1 spare propeller.*

The foregoing is a correct description,  
 FOR BLAIR & CO., LIMITED.  
*Wm. H. H. & Co.* Manufacturer.

Dates of Survey while building  
 During progress of work in shops -- SECRETARY. *1912. Feb. 1, 2, 7, 8, 10, 14, 15, 17, 18, 22, 24, 25, 28, 29, 30, 1913. 1, 4, 6, 8, 11, 14, 15, 19, 20, 21, 22, 23, 27, 28, 29, 30, 1914. 2, 3, 9, 11, 12.*  
 During erection on board vessel -- *13, 16, 18, 20, 22, 24, 1913. Jan. 7, 8, 10, 13, Feb. 4, 5, 6, Mar. 5, 7, 10, 13, 14.*  
 Total No. of visits *16 + 5* Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders *29.11.12* Slides *29.11.12* Covers *27.11.12* Pistons *9.12.12* Rods *9.12.12*  
 Connecting rods *9.12.12* Crank shaft *11.12.12* Thrust shaft *28.11.12* Tunnel shafts *13.12.12* Screw shaft *4.2.13* Propeller *5.2.13*  
 Stern tube *6.2.13* Steam pipes tested *10.3.13* Engine and boiler seatings *19.2.13* Engines holding down bolts *10.3.13*  
 Completion of pumping arrangements *13.3.13* Boilers fixed *13.3.13* Engines tried under steam *13.3.13*  
 Main boiler safety valves adjusted *13.3.13* Thickness of adjusting washers *P. 8th 5-1/8 : Stan. 8th 5-1/8*  
 Material of Crank shaft *Iron* Identification Mark on Do. *6786* Material of Thrust shaft *Iron* Identification Mark on Do. *8959.N*  
 Material of Tunnel shafts *Iron* Identification Marks on Do. *8959.N* Material of Screw shafts *iron* Identification Marks on Do. *6786*  
 Material of Steam Pipes *Solid drawn copper (7 x 5/8 + 5 x 1/2)* Test pressure *400 lb*

General Remarks (State quality of workmanship, opinions as to class, &c. *To complete the survey the donkey boiler requires to be secured in place, mountings fitted to same, and safety valves adjusted: Tunnel & hold suction completed and spare gear examined. It is proposed to complete the survey at Newcastle. The surveyors have been advised.*

*The machinery of this vessel has been built under special survey. The materials and workmanship are sound and good. The boilers and main steam pipes were tested by hydraulic pressure and the engines and main boilers examined under steam and all found satisfactory. In my opinion the vessel will be eligible to have the notation of LMC 4/13 with a date when the survey has been completed.*

*The donkey boiler has been fitted & secured, its mounting examined, & safety valves adjusted, tunnel & hold suction completed & examined, spare gear examined.*

*It is submitted that this vessel is eligible for THE RECORD + LMC 4.13.*

The amount of Entry Fee .. £ *3-0-0* When applied for, *at two*  
 Special .. £ *37-8-0* APR 14 1913  
 Donkey Boiler Fee .. £ *5*  
 Travelling Expenses (if any) £ *16/4/13* When received, *16/4/13*

Committee's Minute

FRI. APR. 13. 1913

Assigned

*Thmc 4.13*

*Wm. Morrison & Co. Cooper*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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NEWCASTLE-ON-TYNE.

Certificate (if required) to be sent to  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

MACHINERY CERTIFICATE  
 WRITTEN