

Rpt. 4.

## REPORT ON MACHINERY.

No. 51597.

MON. 17 SEP 1906

No. in Survey held at  
Reg. Book.

South Shields

Port of

Newcastle-on-Tyne

Date, first Survey

Apr 08

Received at London Office

Last Survey

6<sup>th</sup> Sept

1906

on the

S.S. KING IDWAL

(Number of Visits 21)

Master W. Williams

Built at

South Shields

By whom built

J. Readhead &amp; Sons

Engines made at

South Shields

By whom made

J. Readhead &amp; Sons

Boilers made at

..

By whom made

..

when made 1906

Registered Horse Power

Owners Phillips Phillips &amp; Co

Port belonging to

South Shields

Nom. Horse Power as per Section 28

326

Is Refrigerating Machinery fitted for cargo purposes

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

25-41-67

Length of Stroke

45

Revs. per minute

60

Dia. of Screw shaft

as per rule 13.64

Material of

1200

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

-

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

Fitting

If two

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

Yes

Length of stern bush

4-8"

Dia. of Tunnel shaft

as per rule 12.4

as fitted 12 1/2

Dia. of Crank shaft journals

as per rule 13.02

as fitted 13 1/4

Dia. of Crank pin

13 1/4

Size of Crank webs

7 1/2 x 9

collars

14 1/2

Dia. of screw

16.6

Pitch of Screw

16.6 - 19.0"

No. of Blades

4

State whether moveable

No

No. of Feed pumps

2

Diameter of ditto

3 1/2

Stroke

33"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

Diameter of ditto

4 3/8

Stroke

33"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

Two

Sizes of Pump

13 1/2 x 9 x 13

1 (6 x 4 x 6)

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

In Engine Room

Four 3 1/2" diam

In Holds, &amp;c.

Fore holds four of 3 1/2"

aft holds four of 3 1/2"

after well one 2 1/2"

No. of Bilge Injections

1

sizes 5 1/2

Connected to condenser, or to circulating pump

Pump

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

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

Dates of examination of completion of fitting of Sea Connections

9.8.06

of Stern Tube

9.8.06

Screw shaft and Propeller

9.8.06

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 2)

Manufacturers of Steel

John Spence &amp; Sons

Total Heating Surface of Boilers

5015.5

Is Forced Draft fitted

No

No. and Description of Boilers

Two upright

No. of Certificate

7281

Working Pressure

180 lbs

Tested by hydraulic pressure to

360 lbs

Date of test

28.7.06

No. of Certificate

7281

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

63.2

No. and Description of Safety Valves to

each boiler

Two spring loaded

Area of each valve

7.06

Pressure to which they are adjusted

18.5 lbs

Smallest distance between boilers or uptakes and bunkers or woodwork

22"

Mean dia. of boilers

16-1 1/2"

Length

10.6

Material of shell plates

S

Thickness

1 1/32

Range of tensile strength

27/32

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

Lap J. R.

long. seams

23.5

Diameter of rivet holes in long. seams

1 3/8"

Pitch of rivets

9 3/8"

Length of plates or width of butt straps

21 1/2"

Per centages of strength of longitudinal joint

rivets 87.7

plate 85.3

Working pressure of shell by rules

186 lbs

Size of manhole in shell

16 x 12

Size of compensating ring

7 1/4 x 1 1/32

No. and Description of Furnaces in each boiler

3

Material

Morrison

Outside diameter

4 ft

Length of plain part

top 19 1/32

Thickness of plates

crown 19 1/32

Description of longitudinal joint

Welded

No. of strengthening rings

none

Working pressure of furnace by the rules

196 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

5/8"

Back

5/8"

Top

5/8"

Pitch of stays to ditto: Sides

8 1/4 x 8

Back

8 3/4 x 8

Top

8 1/4 x 8

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

194 lbs

Material of stays

Iron

Diameter at smallest part

1 1/4"

Area supported by each stay

700"

Working pressure by rules

199

End plates in steam space:

Material of stays

Steel

Material

Steel

Thickness

1 1/8"

Pitch of stays

18 1/4 x 18

How are stays secured

J. N. &amp; W.

Working pressure by rules

182 lbs

Diameter at smallest part

1 1/4"

Area supported by each stay

328.5"

Working pressure by rules

185 lbs

Material of Front plates at bottom

Steel

Thickness

3/4"

Material of Lower back plate

Steel

Thickness

1 1/8"

Greatest pitch of stays

12 x 8

Working pressure of plate by rules

219

Diameter of tubes

3 1/2"

Pitch of tubes

4 3/4"

Material of tube plates

Steel

Thickness: Front

3/4"

Back

3/4"

Mean pitch of stays

9 1/2"

Pitch across wide water spaces

14 1/4"

Working pressures by rules

183 lbs

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

8 1/2 x 1 1/4"

Length as per rule

2.1"

Distance apart

8 1/4"

Working pressure by rules

204

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

-

-

-



# VERTICAL DONKEY BOILER—Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed Stockholm  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test 70 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 attach the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_  
 Material of shell plates \_\_\_\_\_ Thickness See 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 \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

## SPARE GEAR. State the articles supplied:—

7 tail shaft + propeller  
2 Top end, 2 bottom end, 2 main bearing bolts + nuts, 1 set coupling  
bolts, 1 set belt, fuel, air, circ. + donkey pump valves, iron assorted

The foregoing is a correct description,

John Headhead Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1906. Apr. 08. 30. May 2. 7. 9. 16. 22. 26. 29. 31. June 6. 8. 15. 21. Aug. 1. 9. 17. 20. 23. 28. Sept. 6.  
 { During erection on board vessel - - -  
 Total No. of visits 21 Is the approved plan of main boiler forwarded herewith \_\_\_\_\_

Dates of Examination of principal parts—Cylinders July-Aug-06 Slides July-Aug-06 Covers July-Aug-06 Pistons July-06 Rods July-06  
 Connecting rods July-06 Crank shaft 20-8-06 Thrust shaft 5-8-06 Tunnel shafts July-Aug-06 Screw shaft July-Aug-06 Propeller Aug-06  
 Stern tube 8-8-06 Steam pipes tested 23-8-06 Engine and boiler seatings 9-8-06 Engines holding down bolts 20-8-06  
 Completion of pumping arrangements 28-8-06 Boilers fixed 9-8-06 Engines tried under steam 28-8-06  
 Main boiler safety valves adjusted 28-8-06 Thickness of adjusting washers P 1/2 5/16 5/8 7/8 5/4  
 Material of Crank shaft steel Identification Mark on Do. 51147 Material of Thrust shaft steel Identification Mark on Do. G.T. 8-8-06  
 Material of Tunnel shafts steel Identification Marks on Do. G.T. 8-8-06 Material of Screw shafts steel Identification Marks on Do. G.T. 8-8-06  
 Material of Steam Pipes Copper Test pressure 360 lbs

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

This vessel machinery has been built under Special  
Survey & in our opinion is eligible for record H.L.M.C. 9-06

It is submitted that  
 this vessel is eligible for  
 THE RECORD H.L.M.C. 9-06.

The amount of Entry Fee.. £ 3 : : : When applied for, 15 SEP 1906  
 Special .. £ 36 : : :  
 Donkey Boiler Fee .. £ : : : When received, 19-9-06  
 Travelling Expenses (if any) £ : : :  
 Committee's Minute TUES. 18 SEP 1906

Assigned L.M.C. 9-06

MACHINERY CERTIFICATE  
 WRITTEN.

G. A. Dyden Yorke  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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Lloyd's Register  
 Foundation

Certificate (if required) to be sent to Newcastle-on-Tyne

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