

# REPORT ON MACHINERY.

No. 12998.

MON 2 JUL 1906

Port of WEST HARTLEPOOL

Received at London Office

No. in Survey held at

Date, first Survey 1<sup>st</sup> Dec 1905

Last Survey 21<sup>st</sup> June 1906

(Number of Visits 39)

Reg. Book.

Ybupp on the

S. S. Lother Range

Master

Built at W Hartlepool

By whom built James Wether & Co. Ld.

When built 1906

Engines made at

Hartlepool

By whom made

Richardsons Westgate Works

when made 1906

Boilers made at

By whom made

when made 1906

Registered Horse Power

Owners Hepburn Steam Navigation Co. Ltd.

Port belonging to

London

Nom. Horse Power as per Section 28

317.75

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

No

## ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 24. 29. 66"

Length of Stroke 45"

Revs. per minute 60

Dia. of Screw shaft

as per rule 14.3

Material of screw shaft

as fitted 14.3 Iron

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

No

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

No

If two

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

Yes

Length of stern bush 4'-10"

Dia. of Tunnel shaft

as per rule 12.05

Dia. of Crank shaft journals

as per rule 12.65

Dia. of Crank pin 13

Size of Crank webs 8x2.1

Dia. of thrust shaft under

collars 1.3

Dia. of screw 16.9"

Pitch of Screw 16.6"

No. of Blades 4

State whether moveable

No

Total surface 87.5 sq ft

No. of Feed pumps 2

Diameter of ditto 3

Stroke 27

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps 2

Diameter of ditto 3 3/4

Stroke 27

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines 2

Sizes of Pumps 6x4x6 + 8 1/2 x 7

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

In Holds, &c. No 3 Hold 2 3/2

No 2 Hold 2 3/2

No 1 Hold 2 3/2

No 4 Hold 2 3/2

No 5 Hold 2 3/2

No 6 Hold 2 3/2

No 7 Hold 2 3/2

In Engine Room 4

3 1/2 Dia

Is a separate Donkey Suction fitted in Engine room & size

Yes 3 1/2

No. of Bilge Injections 1

sizes 5

Connected to condenser, or to circulating pump

Yes

Are the sluices on Engine room bulkheads always accessible

Yes

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 they Valves or Cocks

Both

Are all connections with the sea direct on the skin of the ship

Yes

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

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

22/6/06

Is the Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from

Engine room S. P

Manufacturers of Steel

Clyde Bridge Steel Co

BOILERS, &c.—(Letter for record S)

Total Heating Surface of Boilers 4891 sq ft

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 25/4/06

No. of Certificate 3049

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

52.3 sq ft

No. and Description of Safety Valves to

each boiler 2 Spring

Area of each valve 7.06

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 16.0"

Length 10.9'

Material of shell plates

S

Thickness 19/32

Range of tensile strength 28.5/32

Are the shell plates welded or flanged

No

long. seams TRDBS

Diameter of rivet holes in long. seams 19/32

Pitch of rivets 8.5/8

Lap of plates or width of butt straps 18 1/4"

Per centages of strength of longitudinal joint

rivets 86.8

Working pressure of shell by rules 181.5 lbs.

Size of manhole in shell 16 1/2 x 13"

Size of compensating ring 27 x 30 x 19/32

No. and Description of Furnaces in each boiler 3. Main

Length of plain part

top 9"

Thickness of plates

bottom 19/32

Description of longitudinal joint

Welded

No. of strengthening rings

Working pressure of furnace by rules 186 lbs.

Combustion chamber plates: Material S

Thickness: Sides 19/32

Pitch of stays to ditto: Sides 8 1/2 x 7 1/2

Back 8 1/4 x 8

Top 8 1/2 x 7 1/4

If stays are fitted with nuts or riveted heads

Nuts

Working pressure by rules 183.5 lbs.

Material of stays S

Diameter at smallest part 1 3/8"

Area supported by each stay 8 1/4 x 8"

Working pressure by rules 180 lbs.

Material S

Thickness 1"

Pitch of stays 16 1/4 x 16 1/8

How are stays secured

DN+W

Working pressure by rules 180 lbs.

Material of stays S

Diameter at smallest part 2 1/2"

Area supported by each stay 16 1/4 x 16 1/8

Working pressure by rules 187 lbs.

Thickness 14/16

Material of Lower back plate S

Thickness 13/16

Greatest pitch of stays 13"

Working pressure of plate by rules 194 lbs.

Diameter of tubes 3 1/4"

Pitch of tubes 4 1/2"

Material of tube plates S

Thickness: Front 15/16

Back 12/16

Pitch across wide water spaces 14 1/4"

Working pressures by rules 188 lbs.

Girders to Chamber tops: Material S

Depth and

thickness of girder at centre 8 1/2 x 13 1/4

Length as per rule 32

Distance apart 8 3/4

Number and pitch of stays in each 3. 7 1/4

Working pressure by rules 187.5 lbs.

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

Yes

Lloyd's Register

W 831-0076

Foundation

2020

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. *111* Description *Vertical Donkey Boiler*  
 Made at *West Hartlepool* By whom made *Richardson's* When made *1905* Where fixed *West Hartlepool*  
 Working pressure *150 lbs* tested by hydraulic pressure to *200 lbs* Date of test *1905* No. of Certificate *111* Fire grate area *10* Description of Safe *None*  
 Valves *2* No. of Safety Valves *2* Area of each *10* Pressure to which they are adjusted *150* Date of adjustment *1905*  
 If fitted with easing gear *None* If steam from main boilers can enter the donkey boiler *Yes* Dia. of donkey boiler *18* Length *10*  
 Material of shell plates *Steel* Thickness *1/2* Range of tensile strength *30* Descrip. of riveting long. seams *None*  
 Dia. of rivet holes *1/2* Whether punched or drilled *Drilled* Pitch of rivets *2 1/2* Lap of plating *None* Per centage of strength of joint *100* Rivets *None* Plates *None*  
 Working pressure of shell by rules *150* Thickness of shell crown plates *1/2* Radius of do. *None* No. of stays to do. *None* Dia. of stays *None*  
 Diameter of furnace Top *18* Bottom *18* Length of furnace *10* Thickness of furnace plates *1/2* Description of joint *None*  
 Working pressure of furnace by rules *150* Thickness of furnace crown plates *1/2* Stayed by *None*  
 Diameter of uptake *18* Thickness of uptake plates *1/2* Thickness of water tubes *1/2* Dates of survey *1905*

SPARE GEAR. State the articles supplied:— *1 propeller 2 Piston rod bolts + nuts 2 connecting rod bolts + nuts 6 coupling bolts + nuts 2 Feed pump valves Spare gear as per rules*

The foregoing is a correct description,  
 for RICHARDSON'S WESTGARTH & CO., LIMITED  
*R. Richardson* Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *1905 Dec. 1, 4, 7, 1906 Jan. 19, 22, Feb. 2, 5, 6, 8, 22, 23, 24, Mar. 7, 9, 12, 15, 22, 29, Apr. 24, 26, 27, 28, 29, 30, May 3, 8, 10, 14, 15, 17, 19, 22, June 21.*  
 Managing Director *1905 Dec. 1, 4, 7, 1906 Jan. 19, 22, Feb. 2, 5, 6, 8, 22, 23, 24, Mar. 7, 9, 12, 15, 22, 29, Apr. 24, 26, 27, 28, 29, 30, May 3, 8, 10, 14, 15, 17, 19, 22, June 21.*  
 Total No. of visits *39* Is the approved plan of main boiler forwarded herewith *No*

Dates of Examination of principal parts— Cylinders *24 3/06* Slides *19/4/06* Covers *6 4/06* Pistons *6/4/06* Rods *5/2/06*  
 Connecting rods *4/3/06* Crank shaft *15/3/06* Thrust shaft *23/3/06* Tunnel shafts *22/3/06* Screw shaft *15/4/06* Propeller *15/4/06*  
 Stern tube *17/5/06* Steam pipes tested *19/5/06* Engine and boiler seatings *17/5/06* Engines holding down bolts *17/5/06*  
 Completion of pumping arrangements *17/5/06* Boilers fixed *17/5/06* Engines tried under steam *22/5/06*  
 Main boiler safety valves adjusted *22/5/06* Thickness of adjusting washers *CP 30 1/2 1/32, PS 1/2 1/32, PO 1/2 (307) PS 1/2*  
 Material of Crank shaft *S* Identification Mark on Do. *4388* Material of Thrust shaft *S* Identification Mark on Do. *4388*  
 Material of Tunnel shafts *S* Identification Marks on Do. *4388* Material of Screw shafts *Iron* Identification Marks on Do. *4388*  
 Material of Steam Pipes *W.D. 19/5/06* Test pressure *550 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*The Engines & Boilers of this vessel have been constructed under special survey & the materials & workmanship are found to be good. The Engines have been tried under steam & the safety valves of the Main & Donkey boilers have been adjusted under steam to the working pressure.*

*The Machinery is now in good & safe working condition & eligible in my opinion to have the notation of + LMC 6.06 (in Red) in the Register Book.*

It is submitted that  
 this vessel is eligible for  
 THE RECORD *ILM.C.6.06.*

The amount of Entry Fee. £ *5* : : When applied for, *29. 6. 06*  
 Special .. £ *35* : *17* : :  
 Donkey Boiler Fee .. £ : : :  
 Travelling Expenses (if any) £ : : :  
 When received, *20. 6. 06*

*J. M. S. M. S. 06*  
*Thos. S. Shonston*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 Assigned *thmc 6.06*  
 TUES. 3 JUL 1906

