

# REPORT ON MACHINERY.

No. 12947.

Port of WEST HARTLEPOOL

Received at London Office MON. 21 MAY 1906

No. in Survey held at Hartlepool

Date, first Survey 13<sup>th</sup> May 1905

Last Survey 9<sup>th</sup> May 1906

(Number of Visits 40)

Reg. Book.

Supp. on the S.S. Malvern Range.

Master J. W. Wilson

Built at W. Hartlepool By whom built Furness, Withy & Co. Ltd.

Tons Gross 3573.13

Net 2326.37

When built 1906

Engines made at Hartlepool

By whom made Richardsons, West Hartlepool

When made 1906

Boilers made at W. Hartlepool

By whom made Richardsons, West Hartlepool

When made 1906

Registered Horse Power

Owners Heptone Navigation Co. Ltd. (J. W. Wilson)

Port belonging to Liverpool

Nom. Horse Power as per Section 28 317

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 24.39.66. Length of Stroke 45. Revs. per minute 60 Dia. of Screw shaft as per rule 14.3 Material of screw shaft S.S.

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 Yes Length of stern bush 5.0"

Dia. of Tunnel shaft as per rule 12.05 Dia. of Crank shaft journals as per rule 11.65 Dia. of Crank pin 13.5 Size of Crank webs 8 x 2.1 1/2 Dia. of thrust shaft under collars 13.5 Dia. of screw 16.9 Pitch of Screw 16.6 No. of Blades 4 State whether moveable No Total surface 87.5 sq

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 1/2" Stroke 27" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 6 x 4 x 6 8 1/2 x 7" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room (4) 3 1/2" Dia In Holds, &c. Fore Hold 2. 3 1/2" No 2 Hold 2. 3 1/2"

No. of Bilge Injections 1 sizes 5" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & 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 Yes

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 30/3/06 of Stern Tube 30/3/06 Screw shaft and Propeller 30/3/06

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top Platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Glyde & Sons Ltd.

Total Heating Surface of Boilers 4891 Is Forced Draft fitted No No. and Description of Boilers Two S.E. Multitubular

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 22.3.06 No. of Certificate 301

Can each boiler be worked separately Yes Area of fire grate in each boiler 52.3 sq No. and Description of Safety Valves to each boiler 2 Spring

Area of each valve 7.06 Pressure to which they are adjusted 185 Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 15" 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 Descrip. of riveting: cir. seams DR.

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 1/2

Per centages of strength of longitudinal joint rivets 86.5 Working pressure of shell by rules 181.5 Size of manhole in shell 13 1/2 x 16 1/2

Size of compensating ring 19/32 No. and Description of Furnaces in each boiler 3 Morrison Material S Outside diameter 50 3/4

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 the rules 186 lbs. Combustion chamber plates: Material S Thickness: Sides 19/32 Back 19/32 Top 19/32 Bottom 7/8

Pitch of stays to ditto Sides 7 1/2 x 8 1/2 Back 8 x 8 1/4 Top 7 1/4 x 8 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 183 lbs.

Material of stays S Diameter at smallest part 1 3/8 Area supported by each stay 650" Working pressure by rules 190 lbs. End plates in steam space:

Material S Thickness 1 1/32 Pitch of stays 16 1/4 x 16 1/2 How are stays secured DNW Working pressure by rules 181 lbs. Material of stays S

Diameter at smallest part 2 5/8 Area supported by each stay 2780" Working pressure by rules 194 lbs. Material of Front plates at bottom S

Thickness 7/8 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 3/4 Mean pitch of stays 9"

Pitch across wide water spaces 1 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 1 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 lbs. Superheater or Steam chest; how connected to boiler — 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 — 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 —

W613-0107

W613-0111

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

**VERTICAL DONKEY BOILER**

Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_  
 Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_  
 If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_  
 Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_ Rivets \_\_\_\_\_  
 Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Plates \_\_\_\_\_  
 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: — *1 Spare propeller & spare gear as per rule requirements*

The foregoing is a correct description,  
 For **RICHARDSONS, WESTGARTH & CO., LIMITED** Manufacturer.

Managing Director. 19. 01. May 17. 18. 19. 22. June 17. Nov. 25. 27. 29. Dec. 4. 5. 6. 7. 11. 29. 1906. Jan. 5. 9. 10. 11. 18.  
 Dates of Survey while building: During progress of work in shops — 19. 22. 24. 21. Feb. 1. 6. 7. 8. 22. 23. Mar. 2. 5. 6. 12. 21. 22. 26. 28. 29. 30. May 9.  
 During erection on board vessel — \_\_\_\_\_  
 Total No. of visits: 40  
 Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts — Cylinders 27/11/05 Slides 21/12/06 Covers 29/11/05 Pistons 21/12/06 Rods 11/1/06  
 Connecting rods 8/2/06 Crank shaft 10/1/06 Thrust shaft 22/12/05 Tunnel shafts 22/12/05 Screw shaft 6/3/06 Propeller 5/3/06  
 Stern tube 6/3/06 Steam pipes tested 29/3/06 Engine and boiler seatings 30/3/06 Engines holding down bolts 30/3/06  
 Completion of pumping arrangements 30/3/06 Boilers fixed 30/3/06 Engines tried under steam 30/3/06  
 Main boiler safety valves adjusted 30/3/06 Thickness of adjusting washers P.B. P. 6/16. 3/16. S.B. S. 5/16. 5/16  
 Material of Crank shaft S Identification Mark on Do. 4302 Material of Thrust shaft S Identification Mark on Do. 4302  
 Material of Tunnel shafts S Identification Marks on Do. 4302 Material of Screw shafts S.D. Identification Marks on Do. 4302.  
 Material of Steam Pipes Iron. Test pressure 450 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 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 remain as classed & to have the Notation of +L.M.C. 5.06 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD H.L.M.C. 5.06

The amount of Entry Fee. £ 3:  
 Special .. £ 25 17:  
 Donkey Boiler Fee .. £ :  
 Travelling Expenses (if any) £ :

When applied for. 19. 5. 1906  
 When received. 22. 5. 1906

*Shos. P. Thornton*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

Assigned

MACHINERY CERTIFICATE WRITTEN.



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That should be sent to

Certificate (if required) to be sent to

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