

REPORT ON MACHINERY.

No. 12697

Port of West Hartlepool

Received at London Office SAL 2 LP 1805

No. in Survey held at West Hartlepool

Date, first Survey 16th February Last Survey 1st Sept. 1905

Reg. Book.

on the S S "Apollo"

(Number of Visits 73)

Tons { Gross 3774.99
Net 2443.00

Master S Shirley Built at W Hartlepool By whom built Messrs Furness Withy & Co When built 1905

Engines made at Hartlepool By whom made Messrs Richardson's Westgarth & Co Ltd when made 1905

Boilers made at Hartlepool By whom made Messrs Richardson's Westgarth & Co Ltd when made 1905

Registered Horse Power _____ Owners Darris & Dixon Ltd Port belonging to London

Nom. Horse Power as per Section 28 317 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" 1P39" 1P66" Length of Stroke 45" Revs. per minute 60 Dia. of Screw shaft as per rule 14.33 Material of screw shaft Scrapiron

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 ✓ 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 ✓ If two

liners are fitted, is the shaft lapped or protected between the liners No Length of stern bush 4-10"

Dia. of Tunnel shaft as per rule 12.07 Dia. of Crank shaft journals as per rule 12.67 Dia. of Crank pin 13" Size of Crank webs 8" x 25" Dia. of thrust shaft under

collars 13" Dia. of screw 16-9" Pitch of screw 16-6" No. of blades 4 State whether moveable No Total surface 84.60

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 Feed 6" x 4" x 6" double Ball 8" dia. No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three eng room suction 3 1/2" dia. In Holds, &c. 2 1/2" No 1 Hold 3 1/2" dia. 2 1/2" No 2 Hold 3 1/2" dia. 2 1/2" No 3

hold 3 1/2" dia. 2 1/2" No 4 hold 3 1/2" dia. 1 to Tunnel Well 2 1/2" dia

No. of bilge injections 1 sizes 5" Connected to condenser, or to circulating pump Yes as a separate donkey suction fitted in Engine room & size Yes 3 1/2" dia

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 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Now new Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Cog Room Top Platform

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 48910 Is forced draft fitted No

No. and Description of Boilers 2 Single ended Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs

Date of test 29.6.05 Can each boiler be worked separately Yes Area of fire grate in each boiler 52.30 No. and Description of safety valves to

each boiler Two Spring loaded 3" dia Area of each valve 7.068" 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 1-6" Mean dia. of boilers 16-0" Length 10-9" Material of shell plates Steel

Thickness 1 3/32" Range of tensile strength 28 1/2-32 Are they welded or flanged No Descrip. of riveting: cir. seams J.R. long. seams T.R.

Diameter of rivet holes in long. seams 1 3/32" Pitch of rivets 8 5/8" Lap of plates on width of butt straps 18 1/4"

Per centages of strength of longitudinal joint 86.87% Working pressure of shell by rules 181.5 lbs Size of manhole in shell 13" x 16 1/2"

Size of compensating ring 29" x 30" x 1 3/32" No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 50 3/4"

Length of plain part top 9" Thickness of plates or own 1 9/32" Description of longitudinal joint Weld No. of strengthening rings ✓

Working pressure of furnace by the rules 180 lbs Combustion chamber plates: Material Steel Thickness: Sides 1 9/32" Back 1 9/32" Top 1 9/32" Bottom 7/8"

Pitch of stays to ditto: Sides 7 1/2" x 8 1/2" Back 8" x 8 1/4" Top 7 1/2" x 8 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 183.5 lbs

Material of stays steel Diameter at smallest part 1 3/8" Area supported by each stay 66" Working pressure by rules 180 lbs End plates in steam space:

Material Steel Thickness 1 3/32" Pitch of stays 16 3/4" x 16 1/2" How are stays secured Welds & Nuts Working pressure by rules 181 lbs Material of stays steel

Diameter at smallest part 2 5/8" Area supported by each stay 278" Working pressure by rules 194 lbs Material of Front plates at bottom steel

Thickness 7/8" Material of Lower back plate steel Thickness 1 3/16" 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 steel Thickness: Front 1 5/16" Back 3/4" Mean pitch of stays 9"

Pitch across wide water spaces 14 1/4" Working pressures by rules 188 lbs Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 8 1/2" x 1 3/4" Length as per rule 32" Distance apart 8 3/4" Number and pitch of Stays in each 3. 7 1/2"

Working pressure by rules 180 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 ✓

Richardsons Westgarth & Co Ltd 1914

DONKEY BOILER— No. *One* Description *Cyl. Mult 2 plain furnaces*
 Made at *Stockton* By whom made *Piley Bros Ltd* When made *1905* Where fixed *Stockhold*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *3399* Fire grate area *222 sq ft* Description of safety valves *Spring loaded*
 No. of safety valves *2* Area of each *5.93* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *No*
 Dia. of donkey boiler *9'-0"* Length *9'-0"* Material of shell plates *Steel* Thickness *1/2"* Range of tensile strength *27/32* Descrip. of riveting long. seams *DB Butt Staggered Riv* Dia. of rivet holes *13/16"* Whether punched or drilled *drilled* Pitch of rivets *1 1/2"*
 Lap of plating *12"* Per centage of strength of joint *82.9* Rivets *97.9* Thickness of shell plates *3/4"* Radius of do. No. of Stays to do. *4*
 Dia. of stays *2 1/8"* Diameter of furnace *Top 2-7 Bottom 7-10* Length of furnace *Top 5-11* Thickness of furnace plates *1/2"* Description of joint *welded* Thickness of furnace crown plates *1/2" x 1/2"* Stayed by *Stays 1 1/2" x 9 3/4" 1 1/2" dia* Working pressure of shell by rules *95 lbs*
 Working pressure of furnace by rules *93 lbs* Diameter of tubes *3"* Thickness of tubes *F 3/4" B 3/4"* Thickness of stay tubes *5/16"*

SPARE GEAR. State the articles supplied:— *Two top end bolts & nuts, two bottom end bolts & nuts 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed and bilge pump valves, 1 spare propeller, 1 spare propeller shaft, 1 spare set of metallic packing for HP & IP piston rods & HP, IP & IP valve spindles assorted iron; bolts & nuts*

The foregoing is a correct description,
For RICHARDSONS, WESTGARTH & CO. LIMITED
L.D. Murgate Manufacturer.

Dates of Survey while building: During progress of work in shops: 1905 Feb. 16, Mar. 1, 5, 10, 14, 18, 19, 20, 26, 27, 28, May 1, 5, 6, 8, 11, 12, 13, 15, 17, 19, 20, 21, 24, 25, 26, 29, 30, 31, June 1, 2, 3, 5, 6, 8, 9, 10, 14, 15, 16, 17, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, July 3, 4, 6, 11, 13, 24, 25, 28, Aug 1, 3, 14, 16, 17, 21, 22, 25, 26, 30, 31, Sept 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Oct 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Nov 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Dec 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31

Total No. of visits: *73*

Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " retained for duplicate *No*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The main steam pipes have been tested by hydraulic pressure to 360 lbs per sq inch with satisfactory results. The engines & boilers of this vessel have been constructed under special survey, and are in accordance with the requirements of the rules. The materials and workmanship are good. The machinery has been tried on board under steam and found to work well, & in my opinion is eligible to have record of + L.M.C. 9.05 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 9.05.

Pml
2.9.05
2.9.05

The amount of Entry Fee... £ 3 : 17 :
 Special ... £ 35 : :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 30.8.1905
 When received, 1.9.05

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

TUES. 5 SEP 1905

Committee's Minute

Assigned

+ L.M.C. 9.05

MACHINERY CERTIFICATE WRITTEN.



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Certificate (if required) to be sent to West Hartlepool