

REPORT ON MACHINERY.

No. 13099

Port of WEST HARTLEPOOL.

Received at London Office WED. 24 OCT 1906

No. in Survey held at West Hartlepool Date, first Survey 22nd March Last Survey 18th October, 1906.

Reg. Book. S.S. Harley (Number of Visits 39)

Master W. b. Pope Built at W Hartlepool By whom built Lurness Wigham & Co When built 1906

Engines made at Hartlepool By whom made Richardsons Westgarth & Co when made 1906

Boilers made at " By whom made " when made 1906

Registered Horse Power 325 Owners J. b. Harrison Ltd Port belonging to London

Nom. Horse Power as per Section 28 325 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. 29. 66 Length of Stroke 48 Revs. per minute 64 Dia. of Screw shaft 14 3/4 as per rule 14 3/4 as fitted 14 3/4 Material of screw shaft 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 ✓

Is 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 Yes Length of stern bush 5'-0"

Dia. of Tunnel shaft 12 3/4 as per rule 12 3/4 as fitted 12 3/4 Dia. of Crank shaft journals 12 3/4 as per rule 12 3/4 as fitted 12 3/4 Dia. of Crank pin 14 Size of Crank webs 8 1/2 x 2 1/2 Dia. of thrust shaft under collars 13 1/4 Dia. of screw 17'-0" Pitch of Screw 16'-0" No. of Blades 4 State whether moveable No Total surface 92 sq

No. of Feed pumps 2 Diameter of ditto 3 1/4 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 Engine Room No 3 hold (2) 3 1/2" dia No 4 hold (2) 3 1/2" dia In Holds, &c. No 2 hold (2) 2 1/2" dia No 2 hold (2) 2 1/2" dia Tunnel force 2 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 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 19/9/06 of Stern Tube 19/9/06 Screw shaft and Propeller 19/9/06

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

OILERS, &c.—(Letter for record 5) Manufacturers of Steel Clydebridge Steel Co Lin.

Total Heating Surface of Boilers 4993 sq Is Forced Draft fitted No No. and Description of Boilers 2 Simple end

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 24/8/06 No. of Certificate 3073

Can each boiler be worked separately Yes Area of fire grate in each boiler 50.2 sq No. and Description of Safety Valves to each boiler 2 Spring Area of each valve 7.06 sq 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 27" Mean dia. of boilers 16'-3" Length 10'-9" Material of shell plates S

Thickness 1 5/16 Range of tensile strength 28-32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams DR

long. seams DBSTR Diameter of rivet holes in long. seams 1 5/16 Pitch of rivets 9" Lap of plates or width of butt straps 19"

Per centages of strength of longitudinal joint rivets 85.3% Working pressure of shell by rules 181 lbs Size of manhole in shell 13 x 16 1/2

Size of compensating ring 1 5/16 No. and Description of Furnaces in each boiler 3 Morrison Material S Outside diameter 50 3/4

Length of plain part top 9 bottom 9 Thickness of plates crown 19/32 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 3/4 Back 8 1/4 x 8 Top 7 1/4 x 8 3/4 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 66 sq Working pressure by rules 180 lbs End plates in steam space:

Material S Thickness 1 1/32 Pitch of stays 16 3/8 x 16 How are stays secured DR Working pressure by rules 180.6 lbs Material of stays S

Diameter at smallest part 2 1/2 Area supported by each stay 272 sq Working pressure by rules 180 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 x 8 Working pressure of plate by rules 196 lbs

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 3/8 Material of tube plates S Thickness: Front 15/16 Back 3/4 Mean pitch of stays 8 7/8

Pitch across wide water spaces 14 1/4 Working pressures by rules 185 lbs Girders to Chamber tops: Material S Depth and thickness of girder at centre 8 1/2 x 1 3/4 Length as per rule 31 1/2 Distance apart 8 3/4 Number and pitch of stays in each 3. 7 1/4

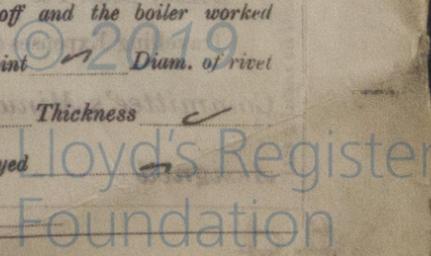
Working pressure by rules 187.5 lbs Superheater or Steam chest; how connected to boiler ✓ Can the superheater be shut off and the boiler worked separately ✓

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 ✓

WS62-0039



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. *1000* Description *Vertical Donkey Boiler*

Made at *West Hartlepool* By whom made *Richardsons Westgarth & Co. Ltd* When made *1906* Where fixed *on board*

Working pressure tested by hydraulic pressure to *100 lbs* Date of test *19.10.06* No. of Certificate *1000* Fire grate area *100* Description of Safe *None*

Valves *1* No. of Safety Valves *1* Area of each *10* Pressure to which they are adjusted *100* Date of adjustment *19.10.06*

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 *Iron* Thickness *1/2* Range of tensile strength *30-40* Descrip. of riveting long. seams *None*

Dia. of rivet holes *1/2* Whether punched or drilled *Drilled* Pitch of rivets *1 1/2* Lap of plating *1* Per centage of strength of joint *100* Rivets *None* Plates *None*

Working pressure of shell by rules *100* 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 *100* 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 *19.10.06*

SPARE GEAR. State the articles supplied:— *1 spare propeller & spare gear as per rule requirements*

The foregoing is a correct description.
RICHARDSONS WESTGARTH & CO. LIMITED
20, Bridge Street Manufacturer.

Dates of Survey while building	During progress of work in shops	1906. Mar. 22. Apr. 25. 27. May 3. 10. 29. 30. June 1. 12. 27. 29. July 2. 4. 6. 9. 12. 13. 20. 23. 25. 27.
	During erection on board vessel	Aug. 1. 2. 3. 15. 22. 23. 24. 27. Sept. 3. 5. 6. 10. 13. 14. 15. 19. Oct. 15. 16. 18.
Total No. of visits		39

Dates of Examination of principal parts	Cylinders	20/7/06	Slides	13/9/06	Covers	6/7/06	Pistons	6/7/06	Rods	6/7/06
	Connecting rods	13/9/06	Crank shaft	29/6/06	Thrust shaft	29/6/06	Tunnel shafts	22/8/06	Screw shaft	27/8/06
	Stern tube	23/7/06	Steam pipes tested	14/9/06	Engine and boiler seatings	13/9/06	Engines holding down bolts	13/9/06		
	Completion of pumping arrangements	19/9/06	Boilers fixed	13/9/06	Engines tried under steam	19/9/06				
	Main boiler safety valves adjusted	19/9/06	Thickness of adjusting washers	SBS 7/16 P 7/16 P P P 7/16 S 3/8						
	Material of Crank shaft	S	Identification Mark on Do.	4447	Material of Thrust shaft	S	Identification Mark on Do.	4447		
	Material of Tunnel shafts	S	Identification Marks on Do.	4447	Material of Screw shafts	S Iron	Identification Marks on Do.	4447		
	Material of Steam Pipes	W Iron	Test pressure	600 lbs						

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

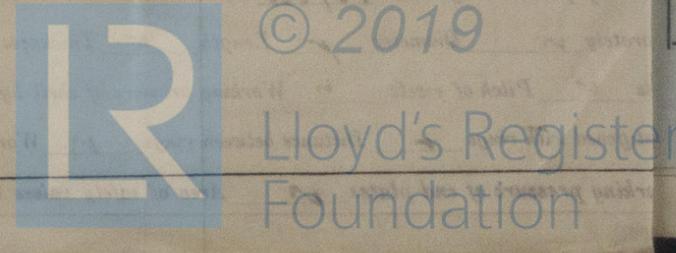
The engines & boilers of this vessel have been constructed under special survey & the materials & workmanship are sound & good. The engines have been tried under steam & the safety valves of the main & donkey boilers adjusted to the working pressure. The machinery is now in good & safe working condition & eligible in my opinion to have the notation of H.M.C. 10.06 in red in the register books.

It is submitted that this vessel is eligible for THE BOARD H.L.M.C. 10.06.

The amount of Entry Fee	£ 3	When applied for	19.10.06
Special	£ 36 16	When received	22.10.06
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

Wm. L. Thompson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 26 OCT 1906**
 Assigned *+ L.M.C. 10.06*



West Hartlepool

Certificate (if required) to be sent to

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