

REPORT ON MACHINERY.

No. 13065

Port of WEST HARTLEPOOL.

Received at London Office SAT. 22 SEP 1906

No. in Survey held at West Hartlepool Date, first Survey 12th March Last Survey 14/9 1906
 Reg. Book. S. S. Harpenden (Number of Visits 27)
 Master C. C. Smith Built at W. Hartlepool by whom built James Collyer & Co. Tons { Gross 3552.54
 Engines made at Hartlepool By whom made Richardson Westgarth & Co. when made 1906 Net 2501.66
 Boilers made at W. Hartlepool By whom made W. Hartlepool when made 1906
 Registered Horse Power 292 Owners J. & B. Harrison Ltd Port belonging to London
 Nom. Horse Power as per Section 28 318.6 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 x 39 x 60 Length of Stroke 45 Revs. per minute 60 Dia. of Screw shaft 14.5 as per rule 14.5 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
 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 Yes If two
 liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 4'-10"
 Dia. of Tunnel shaft 12.5 as per rule 12.5 Dia. of Crank shaft journals 12.5 as per rule 12.5 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' x 6 No. of Blades 4 State whether moveable No Total surface 88.9 ft²
 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 6 x 4 x 6 & 8 1/2 x 7 D No. and size of Suctions connected to both Bilge and Donkey pumps
 in Engine Room (4) 3 1/2" dia In Holds, &c. No 1 hold 2-3 1/2" No 2 hold 2-3 1/2"
No 3 hold 2-3 1/2" No 4 hold 2-3 1/2" Tunnel well 1 2 1/2"
 No. of Bilge Injections 1 sizes 5" Connected to condenser, or to circulating pump Cir 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 2/8/06 of Stern Tube 16/8/06 Screw shaft and Propeller 18/8/06
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top Platform

OILERS, &c.—(Letter for record S) Manufacturers of Steel Glydebridge Steel Co. Lin
 Total Heating Surface of Boilers 4403 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 3/8/06 No. of Certificate 3071
 Can each boiler be worked separately Yes Area of fire grate in each boiler 52.31 ft² No. and Description of Safety Valves to
 each boiler 2 Spring Area of each valve 11.04 ft² 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 18" Mean dia. of boilers 16'-0" Length 10'-9" Material of shell plates S
 Thickness 1 1/32 Range of tensile strength 28/ 31 1/2 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams TR
 long. seams TRDBS Diameter of rivet holes in long. seams 1 1/32 Pitch of rivets 8 3/4 Lap of plates or width of butt straps 19"
 Percentages of strength of longitudinal joint 89.6 Working pressure of shell by rules 187 lbs. Size of manhole in shell 13 x 16 1/2
 Size of compensating ring 1 1/32 No. and Description of Furnaces in each boiler 3 Morrison Material S Outside diameter 50 3/4
 Length of plain part 9 Thickness of plates 5/8 Description of longitudinal joint Weld No. of strengthening rings —
 Working pressure of furnace by the rules 198.5 lbs. Combustion chamber plates: Material S Thickness: Sides 19/32 Back 7/8 Top 19/32 Bottom 7/8
 Pitch of stays to ditto: Sides 7 1/2 x 7 1/2 Back 8 x 8 Top 7 1/2 x 7 1/2 stays are fitted with nuts or riveted heads Nuts Working pressure by rules 212 lbs.
 Material of stays S Diameter at smallest part 1 3/8 Area supported by each stay 64 Working pressure by rules 186 lbs. End plates in steam space:
 Material S Thickness 1 1/16 Pitch of stays 15 x 20 How are stays secured DN+W Working pressure by rules 185 lbs. Material of stays S
 Diameter at smallest part 27/8 Area supported by each stay 300 Working pressure by rules 216 lbs. Material of Front plates at bottom S
 Thickness 7/8 Material of Lower back plate S Thickness 13/16 Greatest pitch of stays 12 3/4 Working pressure of plate by rules 205 lbs.
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 Material of tube plates S Thickness: Front 13/16 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 S Depth and
 thickness of girder at centre 8 x 13 1/4 Length as per rule 31 1/2 Distance apart 7 7/8 Number and pitch of stays in each 37 1/4
 Working pressure by rules 184.5 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 —

VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description	Made at	By whom made	When made	Where fixed
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of Safe
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 enter the donkey boiler	Dia. of donkey boiler	Length		
Material of shell plates	Thickness	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 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 1 spare propeller shaft & Spare gear as per rule requirements

The foregoing is a correct description,
for RICHARDSON, WESTGARTH & CO., LIMITED
Manufacturer.

During progress of work in shops - 1906. Mar. 12. Managing Director. Apr. 4. 25. 27. May. 3. 24. 29. 31. June. 22. 28. July. 2. 4. 6. 9. 12. 13. 16. 20. 23.
During erection on board vessel - Aug. 1. 2. 3. 6. 21. Sept. 13. 14.
Total No. of visits 27. Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 3/7/06 Slides 24/5/06 Covers 4/7/06 Pistons 2/8/06 Rods 2/8/06
Connecting rods 2/8/06 Crank shaft 28/6/06 Thrust shaft 3/5/06 Tunnel shafts 7/6/06 Screw shaft 2/7/06 Propeller 16/8/06
Stern tube 16/8/06 Steam pipes tested 21/8/06 Engine and boiler seatings 16/8/06 Engines holding down bolts 16/8/06
Completion of pumping arrangements 14/9/06 Boilers fixed 14/9/06 Engines tried under steam 14/9/06
Main boiler safety valves adjusted 14/9/06 Thickness of adjusting washers R8PB 17/32 50 1/2" S8PB 1/2" S8 17/32
Material of Crank shaft S Identification Mark on Do. 4443 Material of Thrust shaft S Identification Mark on Do. 4444
Material of Tunnel shafts S Identification Marks on Do. 4443 Material of Screw shafts S Iron Identification Marks on Do. 4443
Material of Steam Pipes W Iron Test pressure 500lb

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 Safety valves of the Main & Donkey boilers have been adjusted under steam to the working pressure & the Engines have been tried under steam & found satisfactory

The Machinery of this vessel is now in good & safe working condition & is eligible in my opinion to have the notation of + L.M.C. 9. 06 (in red) in the Register Book.

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

The amount of Entry Fee.. £ : : When applied for, 10. 9. 06
Special £ 25. 19. : :
Donkey Boiler Fee £ : : When received, 25. 9. 06
Travelling Expenses (if any) £ : : 25. 9. 06

Thos. S. Thornton
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI, 28 SEP 1906

Assigned