

REPORT ON MACHINERY.

Port of WEST HARTLEPOOL

Received at London Office: **MUN. 16 JAN 1905**

No. in Survey held at Hartlepool Date, first Survey 13th June 04 Last Survey 4th Jan 1905
 Reg. Book. 35 Sup. on the Steel S.S. "Germanic" (Number of Visits 85)
 Master Ireland Built at Hartlepool By whom built Irvin's S. B. & Co. Ltd Gross 3344 Tons
 Engines made at Hartlepool By whom made Richardsons, Westgarth & Co. When built 1905 Net 2141
 Boilers made at Hartlepool By whom made do do when made 1905
 Registered Horse Power 312 Owners H. A. Lockertine & Co. Port belonging to Hull
 Nom. Horse Power as per Section 28 312 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders three No. of Cranks three
 Dia. of Cylinders 23 1/2 - 39 - 66 Length of Stroke 45 Revs. per minute 60 Dia. of Screw shaft 14 1/2 Material of screw shaft Steel
 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 Yes
 liners are fitted, is the shaft lapped or protected between the liners no Length of stern bush 4-9 3/4
 Dia. of Tunnel shaft 11-9 1/2 Dia. of Crank shaft journals 12 1/2 Dia. of Crank pin 13 Size of Crank webs 25x8 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 84.6 sq ft
 No. of Feed pumps 2 Diameter of ditto 3 Stroke 24 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 3 1/2 Stroke 24 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 3 Sizes of Pumps two 4 1/2" duplex Ballast No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room three 3 1/2" dia In Holds, &c. One 2 1/2" dia to fore head, two 3 1/2" dia to No. 1 hold, two 3 1/2" dia to No. 2 hold, two 3 1/2" dia to No. 3 hold, two 3 1/2" dia to aft hold & one 2 1/2" dia to No. 4 hold
 No. of bilge injections one sizes 5 Connected to condenser, or to circulating pump no Is a separate donkey suction fitted in Engine room Yes size 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 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 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
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock New vessel Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from upper platform

BOILERS, &c.— (Letter for record no) Total Heating Surface of Boilers 4942 sq ft Is forced draft fitted No
 No. and Description of Boilers 2 single ended. byl. Mull. Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs.
 Date of test 19.10.04 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 direct Area of each valve 4.06 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 11" Mean dia. of boilers 16-0" Length 10-6" Material of shell plates steel
 Thickness 1 1/2" Range of tensile strength 28.5-32 Are they welded or flanged no Descrip. of riveting: cir. seams double long. seams treble
 Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 8 5/8" Lap of plates or width of butt straps 18"
 Per centages of strength of longitudinal joint rivets 86.8 Working pressure of shell by rules 181 lbs. Size of manhole in shell 13" x 16 1/2"
 Size of compensating ring 29" x 30" x 1 1/2" No. and Description of Furnaces in each boiler 3 Monson Material steel Outside diameter 50 1/2"
 Length of plain part top 8" bottom 8" Thickness of plates crown 1 1/2" bottom 1 1/2" Description of longitudinal joint weld No. of strengthening rings —
 Working pressure of furnace by the rules 184 lbs. Combustion chamber plates: Material steel Thickness: Sides 1 1/2" Back 1 1/2" Top 1 1/2" Bottom 1 1/2"
 Pitch of stays to ditto: Sides 8 1/2" x 7 1/2" Back 8 1/2" Top 7 1/2" x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 183 lbs.
 Material of stays steel Diameter at smallest part 1 1/2" Area supported by each stay 65 sq Working pressure by rules 180 lbs. End plates in steam space:
 Material Steel Thickness 1 1/2" Pitch of stays 16 1/2" x 16 1/2" How are stays secured D. N. N. Working pressure by rules 182 lbs. Material of stays steel
 Diameter at smallest part 2 1/2" Area supported by each stay 276 sq Working pressure by rules 202 lbs. Material of Front plates at bottom steel
 Thickness 4" Material of Lower back plate steel Thickness 2 1/2" Greatest pitch of stays 12 3/4" Working pressure of plate by rules 185 lbs.
 Diameter of tubes 3 1/4" Pitch of tubes 16 1/2" Material of tube plates steel Thickness: Front 1" Back 3/4" Mean pitch of stays 9"
 Pitch across wide water spaces 14 1/4" Working pressures by rules 189 lbs. Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8" x 1 3/4" Length as per rule 31" Distance apart 8 3/4" Number and pitch of Stays in each 3 - 4 1/2"
 Working pressure by rules 181 lbs. Superheater or Steam chest; how connected to boiler none 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 —
 Is 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 —

DONKEY BOILER— No. *1116* Description *Blake's Improved Patent*
 Made at *Middlesbrough* By whom made *Richardson Westgarth & Co.* When made *26-10-05* Where fixed *Stokehold*
 Working pressure *90 lb.* tested by hydraulic pressure to *180 lb.* No. of Certificate *3330* Fire grate area *25 sq. ft.* Description of safety valves *Spring direct*
 No. of safety valves *2* Area of each *5.94 sq. ft.* Pressure to which they are adjusted *90 lb.* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *4'-6"* Length *15'-6"* Material of shell plates *steel* Thickness *17/32"* Range of tensile strength *24/32* Descrip. of riveting long. seams *S.H. lap.* Dia. of rivet holes *15/16"* Whether punched or drilled *drilled* Pitch of rivets *3"*
 Lap of plating *4 5/8"* Per centage of strength of joint *Rivets 73.4* Plates *88.45* Thickness of shell crown plates *17/32"* Radius of do. *3'-9"* No. of Stays to do. *—*
 Dia. of stays. *—* Diameter of furnace Top *3'-9"* Bottom *6'-1 1/2"* Length of furnace *4'-4"* Thickness of furnace plates *21/32"* Description of joint *S.H. lap.* Thickness of furnace crown plates *1 1/2"* Stayed by *lashed 4'-6" rad. & gusset* Working pressure of shell by rules *95.4 lb.*
 Working pressure of furnace by rules *96.6 lb.* Diameter of uptake tubes *2 1/2"* Thickness of uptake plates *7 1/2"* Thickness of water tubes *3 5/8"*

SPARE GEAR. State the articles supplied:— *2 bon. rod top & 2 bon. rod bottom end bolts & nuts, 2 main bearings & one set of coupling bolts, one set of feed & bilge pump valves, a quantity of assorted bolts, nuts & iron, propeller, propeller shaft, one set air, circulating & ballast donkey valves, one main & one donkey feed check valves.*

The foregoing is a correct description,
RICHARDSONS, WESTGARTH & CO., LIMITED.
M. Morris Manufacturer.

Managing Director.

Dates of Survey while building	During progress of work in shops—	1905. June. 15, 20, 23, 26, July. 7, 8, 11, 12, 13, 15, 20, 22, 25, 26, Aug. 5, 9, 10, 11, 13, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31, Sept.
	During erection on board vessel—	1, 2, 6, 8, 10, 12, 13, 14, 15, 19, 20, 22, 23, 24, 26, 27, 29, 30, Oct. 3, 4, 7, 8, 11, 12, 13, 14, 15, 18, 19, 21, 26, 28, 31, Nov. 2, 4, 11, 17, 18, 21, 22, 25, 29, 30, Dec. 1, 3, 5, 6
	Total No. of visits	85.

Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *Yes*

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. in. and found tight.
*The engines and boilers of this vessel have been built under special survey in accordance with the Rules requirements, the material and workmanship being good and efficient, when completed and fitted on board were tried under steam at moonings with satisfactory result, and is now eligible, in my opinion, to have **+L.M.C. 1.05** marked in the Register Book.*

It is submitted that this vessel is eligible for **THE RECORD** **+L.M.C. 1.05**

M.S. 16.1.05
P.M.S. 16.1.05

M. Smith
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee. £ *3* : : When applied for, *4.1.05*
 Special £ *35* : *15* : : *19.05*
 Donkey Boiler Fee £ : : : When received, *10.1.05*
 Travelling Expenses (if any) £ : : : *19.05*

Committee's Minute **TUES. 17 JAN 1905**
 Assigned **+L.M.C. 1.05**

Certificate (if required) to be sent to West Hartlepool

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

