

REPORT ON MACHINERY.

Port of WEST HARTLEPOOL.

WED. JAN 8 1896

Received at London Office

No. in Survey held at West Hartlepool Date, first Survey Aug 21st 1895 Last Survey Jan 2nd 1896
 Book. on the Steel S.S. "Bertholey" (Number of Visits 145)
 Master Joshua Nest 90-96 Built at West Hartlepool By whom built Messrs N. Gray & Co Ltd. Tons { Gross 2244.53
 Net 1453.7
 When built 1896
 Engines made at West Hartlepool By whom made Central Marine Eng Works when made 1896
 Boilers made at West Hartlepool By whom made Central Marine Eng Works when made 1896
 Registered Horse Power 223.39 Owners Wm Gibbs Morel (of N. Gray & Co Ltd) Port belonging to Cardiff

ENGINES, &c. — Description of Engines Triple Expansion 3 Cranks No. of Cylinders Three
 Diameter of Cylinders 22" 35" 59" Length of Stroke 39" Revolutions per minute 65 Diameter of Screw shaft as per rule 10.3"
 Diameter of Tunnel shaft as per rule 9.65" Diameter of Crank shaft journals 10.3" Diameter of Crank pin 10.3" Size of Crank webs 6.3" x 15.3"
 Diameter of screw 14.6" Pitch of screw Differential No. of blades 4 State whether moveable no Total surface 63.5 sq. ft.
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 26" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 3.5" Stroke 26" Can one be overhauled while the other is at work yes
 No. of Donkey Engines Three Sizes of Pumps Lead 3.5" x 5" Two Ballast 10" x 9" No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room Three - Two 3.5" dia & one 3.5" dia. In Holds, &c. Seven. - Two 3" dia in No. 1 Hold; one 3" dia in No. 2 Hold; Two 3" dia in No. 3 Hold; & one 2.5" dia to after peak with con. to tunnel.
 No. of bilge injections one sizes 5" Connected to condenser, or to circulating pump circ. pump Is a separate donkey suction fitted in Engine room & size 3.5" dia. - yes.
 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
 Are all pipes 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
 Were stern tube, propeller, screw shaft, and all connections examined in dry dock Vessel not docked Is the screw shaft tunnel watertight yes
 Is it fitted with a watertight door yes worked from top platform of engine room.

BOILERS, &c. — (Letter for record S) Total Heating Surface of Boilers 31442 sq. ft.
 No. and Description of Boilers 3. Single ended. byl. Mult. Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs
 Date of test 15.11.95 Can each boiler be worked separately yes Area of fire grate in each boiler 35 sq. ft. No. and Description of safety valves to boiler Two. Spring direct. Area of each valve 4.04 sq. in Pressure to which they are adjusted 160 lbs. Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 16" Mean diameter of boilers 11.3"
 Length 10.0" Material of shell plates steel Thickness 15/16" Description of riveting: circum. seams double long. seams treble.
 Diameter of rivet holes in long. seams 15/16" Pitch of rivets 6 1/4" Lap of plates or width of butt straps 14 3/8"
 Percentages of strength of longitudinal joint: rivets 87.5% plate 85.0% Working pressure of shell by rules 163.7 lbs Size of manhole in shell 16" x 12"
 Diameter of compensating ring 32" x 28" x 1" No. and Description of Furnaces in each boiler 2. Purves' Material steel Outside diameter 36"
 Length of furnace top 7.2" Thickness of plates: crown 1/16" bottom 1/16" Description of longitudinal joint weld No. of strengthening rings —
 Working pressure of furnace by the rules 161.1 lbs Combustion chamber plates: Material steel Thickness: Sides 19/32" Back 19/32" Top 19/32" Bottom 1/4"
 No. of stays to ditto: Sides 8 5/8" Back 8 5/8" Top 4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 163.78 lbs
 Material of stays steel Diameter at smallest part 1.38" Area supported by each stay 44.3 sq. in Working pressure by rules 160.5 lbs End plates in steam space: Material steel Thickness 1 1/16" Pitch of stays 14 1/2" x 16" How are stays secured double nuts & washers Working pressure by rules 162.9 lbs Material of stays steel
 Diameter at smallest part 2 3/4" Area supported by each stay 282 sq. in Working pressure by rules 161.2 lbs Material of Front plates at bottom steel
 Thickness 3/4" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 13 5/8" Working pressure of plate by rules 186 lbs.
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates steel Thickness: Front 1 1/16" Back 5/8" Mean pitch of stays 9"
 Height across wide water spaces 14 1/4" Working pressures by rules F. 213.4 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7 1/2" x 1 1/4" Length as per rule 22 1/2" Distance apart 8" Number and pitch of Stays in each one, 5 1/4"
 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 —
 Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet —
 Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —
 Fitted 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— Description *No donkey boiler fitted.*
 Made at By whom made When made Where fixed
 Working pressure tested by hydraulic pressure to No. of Certificate Fire grate area Description of safety valves
 No. of safety valves Area of each Pressure to which they are adjusted If fitted with easing gear If steam from main boilers
 enter the donkey boiler Diameter of donkey boiler Length Material of shell plates Thickness
 Description of riveting long. seams Diameter of rivet holes Whether punched or drilled Pitch of rivets * These particulars
 Lap of plating Per centage of strength of joint Rivets Thickness of shell crown plates Radius of do. No. of Stays to do. ginal Letters (if any
 Dia. of stays. Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description Official Number.
 joint Thickness of furnace crown plates Stayed by Working pressure of shell by rules
 Working pressure of furnace by rules Diameter of uptake Thickness of uptake plates Thickness of water tubes

VESS
 105178
 No., Date, and Port of
 Whether British or Foreign Built. Wh
 and
 British
 Number of Decks
 Number of Masts
 Rigged
 Stern
 Galleries
 Lead
 Framework and descr
 vessel
 Number of Bulkheads
 Number of water balla
 and their capacity in

SPARE GEAR. State the articles supplied:— 2 bon. rod top end bolts+nuts, 2 bon. rod bottom end bolts+nuts, 2 Main bearing bolts+nuts, 1 set of coupling bolts+nuts, 1 set of feed+ bilge pump valves, 1 set of piston springs for H.P. cyl, 120 bolts+nuts assorted, 6 bars of Iron + 1 propeller, 1 H.P. Valve + face with pins, 1 eccentric strap, 1 set of Ballast donkey valve, 1 go-ahead eccentric rod, 1 slide valve spindle, 1 set of Air + cir. pump valves, 2 Main + 2 Feed check valves, 1 Spring of ea
 1 Tail shaft + 1/3 crank shaft.
 The foregoing is a correct description,
 Manufacturer.

General Remarks— (State quality of workmanship, opinions as to class, &c. The main steam pipes have been tested by hydraulic pressure to 320 lbs per sq. in. and found tight.
 The engines + Boilers of this vessel, have been constructed under special survey, and of a good quality of workmanship, they have been tried under steam, the safety valves adjusted and found to work well; and are now in safe + efficient working condition, and in my opinion, eligible to have **L.M.C. 1,96** recorded in the Register Book.

Mudd's patent evaporator, and Mudd's patent tail shaft preserver are fitted.

Total to quarter the d
 at side amidships to
 No. of
 Engines
 Description
 Engines.
 Triple Exp
 Direct Act
 Boilers.
 Number
 Iron or Steel
 Pressure when loa
 Gross
 Under Tonnage Deck
 Closed-in spaces above
 Space or spaces be
 Poop
 Forecastle
 Round House
 Other closed-in spa
 Company
 Wharf
 Ex Hat
 Gross Ton
 Deductions, as per C
 Registered
 Name of Mas
 No. of Owners
 Name, Residence, a

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 1,96

RS 8.1.96
 PMS 8.1.96

Certificate (required) to be sent to
 The amount of Entry Fee. £ 2:
 Special £ 31: 3:
 Donkey Boiler Fee £ :
 Travelling Expenses (if any) £ :
 When applied for, 6.1.96
 When received, 7.1.96

W. J. Minin
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipp

Committee's Minute
 Assigned
 FRI. JAN 10 1896
 + L.M.C. 1,96

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 Dated 3rd
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