

REPORT ON MACHINERY.

Port of Sunderland

MUN 21 NOV 1898

No. in Survey held at Sunderland Date, first Survey 27 Jan 98 Last Survey 6 Sept. 1898
 Reg. Book. 38H on the Screw Steamer "Mars" (Number of Visits 40)
 Master M. W. Curtis Built at Hpl By whom built Furness & Co. Ltd. When built 1898
 Engines made at Sunderland By whom made Wallau & Co. Ltd. when made 1898
 Boilers made at Sunderland By whom made Wallau & Co. Ltd. when made 1898
 Registered Horse Power 302 Owners John Lockie Port belonging to Newcastle on Tyne
 Nom. Horse Power as per Section 28 302 Is Electric Light fitted no

ENGINES, &c.—Description of Engines Tri compound No. of Cylinders 3 No. of Cranks 3
 Diameter of Cylinders 23" 38 3/4" 64 1/2" Length of Stroke 45 Revolutions per minute 65 Diameter of Screw shaft as per rule 12.39"
 Diameter of Tunnel shaft as per rule 11.2" Diameter of Crank shaft journals 12 1/4" Diameter of Crank pin 12 1/4" Size of Crank webs 16 1/2" x 8 1/8"
 Diameter of screw 16 6" Pitch of screw 16 6" No. of blades 4 State whether moveable f Total surface 778
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps 10 1/2" x 11" 4 1/2" x 4" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 8 3/8" 6 3/8" 8 3/8" In Holds, &c. 7 1/2" 1 of 3 1/2" 7 1/2" 2 of 3 1/2"
7 1/2" 3 of 3 1/2" 7 1/2" 4 of 3 1/2" tunnel 1-2 1/2"
 No. of bilge injections 1 sizes 5 Connected to condenser, or to circulating pump C.P. 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 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 top platform

BOILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 4640 sq. ft. Is forced draft fitted no
 No. and Description of Boilers 2 Cyl. Multib. S. Ended Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs
 Date of test 16/6/96 Can each boiler be worked separately yes Area of fire grate in each boiler 56 sq. ft. No. and Description of safety valves to
 each boiler 2 Spring Area of each valve 8.30 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 15" Mean diameter of boilers 15' 3 1/4"
 Length 10' 6" Material of shell plates S. Thickness 1 9/32" Description of riveting: circum. seams d. r. lap long. seams T. r. d. butt.
 Diameter of rivet holes in long. seams 1 9/32" Pitch of rivets 8 1/8" Lap of plates or width of butt straps 16 1/2"
 Per centages of strength of longitudinal joint rivets 86.82 Working pressure of shell by rules 180 lbs Size of manhole in shell 16" x 12"
 plate 85.14 Size of compensating ring flanged No. and Description of Furnaces in each boiler 3 Furnes Material S. Outside diameter 46 3/16"
 Length of plain part 7 9" Thickness of plates crown 1 9/32" Description of longitudinal joint welded No. of strengthening rings —
 Working pressure of furnace by the rules 18 1/2 Combustion chamber plates: Material S. Thickness: Sides 1 9/32" Back 2 1/32" Top 1 9/32" Bottom 1 1/16"
 Pitch of stays to ditto: Sides 8" x 8 1/4" Back 9" x 9" Top 8 1/4" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 184 lbs
 Material of stays S. Diameter at smallest part 1 3/32" Area supported by each stay 68.2 Working pressure by rules 182 1/2 End plates in steam space:
 Material S. Thickness 1 9/32" Pitch of stays 23" x 16 1/2" How are stays secured d. nuts Working pressure by rules 188 lbs Material of stays S.
 Diameter at smallest part 3 1/16" Area supported by each stay 379.50 Working pressure by rules 194 Material of Front plates at bottom S.
 Thickness 3/4" Material of Lower back plate S. Thickness 3/4" Greatest pitch of stays 14" Working pressure of plate by rules 280 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/4" x 4 1/2" Material of tube plates S. Thickness: Front 2 5/32" Back 2 5/32" Mean pitch of stays 9" x 8 1/2"
 Pitch across wide water spaces 14" Working pressures by rules 220 lbs Girders to Chamber tops: Material S. Depth and
 thickness of girder at centre 8" Length as per rule 29 1/2" Distance apart 8" Number and pitch of Stays in each 2 of 8 1/4"
 Working pressure by rules 182 1/2 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
 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

DONKEY BOILER— Description *Byf. Mult. with two plain furnaces*
 Made at *Shekton* By whom made *Riley Bros.* When made *4.6.98* Where fixed *Immer decks.*
 Working pressure *100lb* tested by hydraulic pressure to *200lb.* No. of Certificate *1711* Fire grate area *240* Description of safety valves *spring direct*
 No. of safety valves *2* Area of each *5940* Pressure to which they are adjusted *104 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *10-3* Length *9-6* Material of shell plates *steel* Thickness *2 1/2"*
 Description of riveting long. seams *treble riv. lap* Diameter of rivet holes *2 1/2"* Whether punched or drilled *drilled* Pitch of rivets *48*
 Lap of plating *1/4"* Per centage of strength of joint *78* Rivets *48* Thickness of shell *end 3/2* plates *3/4"* Radius of do. *pitch* No. of Stays to do. *15*
 Dia. of stays. *2 1/2"* Diameter of furnace *Top 36* Bottom *32* Length of furnace *6-0* Thickness of furnace plates *1/2"* Description of joint *weld* Thickness of furnace *end 1 1/2* crown plates *1 1/2"* Stayed by *1 1/2" off slaps 9 x 8 pitch* Working pressure of shell by rules *101 lb*
 Working pressure of furnace by rules *103 lb.* Diameter of uptake *3 1/2"* Thickness of uptake plates *1/2"* Thickness of *stay* tubes *5/16"*

SPARE GEAR. State the articles supplied:— *Spare gear supplied in accordance with the requirements of the Rules, and in addition, propeller & propeller shaft.*

The foregoing is a correct description,
 WILLIAM ALLAN & Co., LIMITED, Manufacturers of Engines & Main Boilers

pp. Harry James
 Dates During progress of work in shops - *1898 First quarter 1898 Jan'y. 27*
 of Survey During erection on board vessel - *W. H. Pool. Last summer 1898 Sept. 6*
 while building *1898 July 19. Aug. 4. Sept. 29. Nov. 14. 15. = 5 visits*
 Total No. of visits *40*

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

ENGINES—Length of stern bush *4' 3"* Diameter of crank shaft journals *as per rule 11.8"* Diameter of thrust shaft under collars *13"*
as fitted 12 1/4"

BOILERS—Range of tensile strength *27-32* Are they welded or flanged *flanged* **DONKEY BOILERS**—No. *one* Range of tensile strength *24-32*
 Is the approved plan of main boiler forwarded herewith *Yes.* Is the approved plan of donkey boiler forwarded herewith *No*

Machinery and boilers constructed under Special Survey materials and workmanship good and efficient. Boilers & steam pipes tested by hydraulic to double the W.P. and found satisfactory. Engines and boilers examined under full steam and found in good working order.

In our opinion this vessel will be eligible for the record in the Register book of L.M.C 11,98 when the following work has been carried out viz:— Donkey boiler put on board secured. Tested under steam. Spare gear examined & pumping arrangements to holds and tunnel completed as per approved plan.

The foregoing unfinished work has been satisfactory completed.

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 11.98.

J.S. A.C.H.
22.11.98 22.11.98

The amount of Entry Fee... £ 3 : " :
 Special ... £ 35 : 2 :
 Donkey Boiler Fee ... £ - : :
 Travelling Expenses (if any) £ : :
 When applied for, *15.11.98*
 When received, *15.11.98*

J. J. Findlay, W. Smith.
 Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned

TUES. 22 NOV 1893

MACHINERY CERTIFICATE

+ L.M.C. 11,98



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