

Slip No. 1885
W. No. 10169

REPORT ON MACHINERY.

Port of Sunderland.

THUR, 18 FEB 1897

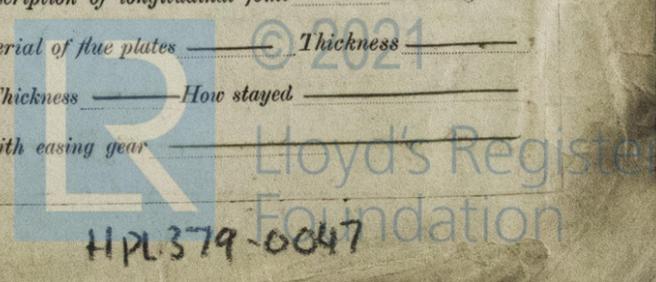
Received at London Office

No. in Survey held at Sunderland. Date, first Survey June 16th 96 Last Survey Decr 23rd 1896 9/2/97
 Reg. Book. (Number of Visits 34)
 on the S/s. "Barbara" Tons (Gross 3729.99) (Net 2444.49)
 Master G. Mahn Built at Hartlepool. By whom built Furness Wigham & Co. When built 1896+7
 Engines made at Sunderland By whom made W. Allan & Co. L^d when made 1896.
 Boilers made at S. land. By whom made W. Allan & Co. L^d when made 1896.
 Registered Horse Power Owners J. B. Lythe & S^o Port belonging to West Hartlepool
 Nom. Horse Power as per Section 28 299. Is Electric Light fitted No

ENGINES, &c.—Description of Engines Tri Compound. No. of Cylinders 3 No. of Cranks 3
 Diameter of Cylinders 25" 40" 66" Length of Stroke 45" Revolutions per minute 70 Diameter of Screw shaft as per rule 11.84
as fitted 12.25"
 Diameter of Tunnel shaft as per rule 11.25" Diameter of Crank shaft journals 12 1/4" Diameter of Crank pin 12 1/4" Size of Crank webs 16 1/2 x 8 7/8
as fitted 11.75"
 Diameter of screw 16 6" Pitch of screw 16 ft. No. of blades 4 State whether moveable f Total surface 75 f²
 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" x 12" & 5 1/2" x 3 1/2" x 5" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 1/2" C 3 1/2" S 3 1/2" In Holds, &c. Four. — One 3 1/2" dia. to No. 1 hold; One 3 1/2" dia. to No. 2 hold; One 3 1/2" dia. to No. 3 hold; and One 3 1/2" dia. to No. 4 hold with con. to Aft's well, & Aft's peak.
 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 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 ✓
 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 of engine room.

BOILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 4600 f² Is forced draft fitted no.
 No. and Description of Boilers 2 Cyl. Multib^l S. ended. Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs
 Date of test 14/11/96. Can each boiler be worked separately yes Area of fire grate in each boiler 62.5 f² No. and Description of safety valves to
 each boiler 2 Spring Area of each valve 8.3. Pressure to which they are adjusted 165 lbs. Are they fitted
 with easing gear yes. Smallest distance between boilers or uptakes and bunkers or woodwork 2 feet. Mean diameter of boilers 15' 3 5/8"
 Length 11' 0 1/2" Material of shell plates S Thickness 1 3/16" Description of riveting: circum. seams a. r. lap. long. seams a. r. butt
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 7/8" Lap of plates on width of butt straps 16"
 Per centages of strength of longitudinal joint rivets 86.29 Working pressure of shell by rules 160 lbs. Size of manhole in shell 16" x 12"
 plate 85.91
 Size of compensating ring 28" x 26" x 1 3/16" No. and Description of Furnaces in each boiler 4 plain Material S. Outside diameter 39"
 Length of plain part top 6' 2" bottom 7'-0" Thickness of plates crown 3 3/32" bottom 3 1/32" Description of longitudinal joint welded. No. of strengthening rings 1/2"
 Working pressure of furnace by the rules 164 lbs Combustion chamber plates: Material S. Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 5/8"
 Pitch of stays to ditto: Sides 8 1/4" x 8" Back 8 1/4" x 8" Top 8 1/4" x 8 1/4" If stays are fitted with nuts or riveted heads nuts. Working pressure by rules 161 lbs
 Material of stays S. Diameter at smallest part 1.35" Area supported by each stay 68 a Working pressure by rules 176 lbs End plates in steam space:
 Material S. Thickness 1 3/32" Pitch of stays 18" x 15 1/2" How are stays secured a. nuts. Working pressure by rules 175 lbs Material of stays S.
 Diameter at smallest part 2.5" Area supported by each stay 324 a Working pressure by rules 176 lbs 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 209 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 7/8" Material of tube plates S Thickness: Front 3/4" Back 3/4" Mean pitch of stays 8 1/2" x 9 1/4"
 Pitch across wide water spaces 14" Working pressures by rules 209 Girders to Chamber tops: Material S. Depth and
 thickness of girder at centre 7 3/4" x 1.5" Length as per rule 29.6 Distance apart 9" Number and pitch of Stays in each 2 of 9"
 Working pressure by rules 171 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
 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 —

If not, state whether, and when, one will be
Report also sent on the Hull of the ship.



DONKEY BOILER— Description *Vertical. Sudron's Patent.*
 Made at *Stockton* By whom made *Sudron & Co. Ltd.* When made *1897* Where fixed *Stoke hold*
 Working pressure *90 lbs.* tested by hydraulic pressure to *160 lbs.* No. of Certificate *1401* Fire grate area *26 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 *81 lbs.* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *6'-6"* Length *15'-0"* Material of shell plates *steel* Thickness *7/16"*
 Description of riveting long seams *double riv. Lap.* Diameter of rivet holes *13/16"* Whether punched or drilled *drilled* Pitch of rivets *2 1/4"*
 Lap of plating *4 1/4"* Per centage of strength of joint Rivets *43* Thickness of shell crown plates *17/32"* Radius of do. *5'-9"* No. of Stays to do. *4 Gussel Rods*
 Dia. of stays. *plates* Diameter of furnace Top *5'-5"* Bottom *5'-10"* Length of furnace *3'-3"* Thickness of furnace plates *5/8"* Description of joint *lap. single. r.* Thickness of furnace crown plates *9/16"* Stayed by *dished 39 rad.* Working pressure of shell by rules *83 lbs.*
 Working pressure of furnace by rules *81 lbs.* Diameter of tubes *2 1/2"* Thickness of *uptake* plates *F. 3/4. B. 9/16"* Thickness of *slay* tubes *1/4"*

SPARE GEAR. State the articles supplied:— *1/3 crank shaft, propeller shaft, 1 set of connecting rod bolts nuts, 2 main bearing bolts nuts, 1 set of coupling bolts nuts.*

The foregoing is a correct description,
Wm Allan & Co. Ltd. Manufacturers *Leitha Engine Works Sunderland*
per Capt. Harrison

Dates of Survey while building
 During progress of work in shops - -
 During erection on board vessel - -
 Total No. of visits
1896 June 16 30 July 9 15 18 31 Aug. 24 Sept. 12 15 21 October 3 12 20 30 Nov. 2 4 11 18 25 30 Dec. 4 31 Oct 12 14 21 28
1897 Jan 25 Feb 7

General Remarks (State quality of workmanship, opinions as to class, &c. *Machinery and boilers constructed under special survey: materials and workmanship good & efficient. Steam pipe tested by hydraulic to 320 lbs. Engines and boilers examined under steam and found satisfactory. In my opinion this vessel will be eligible for the record of L.M.C. 2,97 when the survey is completed. Donkey boiler put on board, mounted & examined under steam. Pumping arrangement to holds completed as per plan approved. 3 spoke gear examined. Tunnel finished opened with water tight door*

The above mentioned unfinished work, has been satisfactorily completed.

It is submitted that
 this vessel is eligible for
THE RECORD + *L.M.C. 2,97*

West Hartlepool
9.1.97.

[Signature]
18.2.97.

The amount of Entry Fee... £ *2* : : :
 Special £ *34* : *19* : : :
 Donkey Boiler Fee £ : : :
 Travelling Expenses (if any) £ : : :
 When applied for: *12 Jan 18. 97*
 When received: *15.1.97*

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

Committee's Minute **FRI. 19 FEB 1897**
 Assigned *+ L.M.C. 2,97*



Certificate (if required) to be sent to WEST HARTLEPOOL