

REPORT ON MACHINERY.

Port of Sunderland

No. in Survey held at Sunderland Date, first Survey 6 Sept. 94 Last Survey 6 May 1895
 Reg. Book. on the SS "Harlington" (Number of Volls. 20)
 Master J. R. Hardy Built at S. land By whom built S. P. Austin & Son Tons { Gross 1031.43
 Engines made at S. land By whom made W. Allan & Co. Ld. when made 1895
 Boilers made at S. land By whom made W. Allan & Co. Ld. when made 1895
 Registered Horse Power 110 Owners J. R. Harrison Port belonging to London
 Nom. Horse Power as per Section 28 138

ENGINES, &c.— Description of Engines Tri compound 3 cranks No. of Cylinders 3
 Diameter of Cylinders 14 1/2" 29" 47" Length of Stroke 33" Revolutions per minute 70 Diameter of Screw shaft as per rule 8 1/4"
 Diameter of Tunnel shaft as fitted 8 1/4" Diameter of Crank shaft journals 8 3/4" Diameter of Crank pin 8 3/4" Size of Crank webs 13 1/2" x 5 1/8"
 Diameter of screw 12" 3" Pitch of screw 13 feet No. of blades 4 State whether moveable f Total surface 44 sq
 No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 18" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 2 1/2" Stroke 18" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps 10" x 12" + 5" x 2 1/2" x 4 1/2" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room P. 2 1/2" C 2 1/2" S 2 1/2" S D S 4" In Holds, &c. Main hold 2 of 2"
after hold 2 of 2" after well 3"
 No. of bilge injections 1 sizes 4 Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size yes 4"
 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
 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

OILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 2230 sq
 No. and Description of Boilers 1 Cylindrical Horizontal Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs
 Date of test 15/2/95 Can each boiler be worked separately only one Area of fire grate in each boiler 55 sq No. and Description of safety valves to
 each boiler 2 Spring Area of each valve 829 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 18" Mean diameter of boilers 15-0 1/8"
 Length 10-6" Material of shell plates S Thickness 1 1/16" Description of riveting: circum. seams d. r. lap long. seams t. r. butt
 Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 8 1/16" Lap of plates or width of butt straps 15 straps
 Per centages of strength of longitudinal joint rivets 86% plate 85.2% Working pressure of shell by rules 160 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 28" x 26" x 1 1/16" No. and Description of Furnaces in each boiler 4 plain Material S Outside diameter 36"
 Length of plain part top 7 1/2" bottom 4 1/2" Thickness of plates crown 1 1/16" bottom 1 1/16" Description of longitudinal joint welded No. of strengthening rings —
 Working pressure of furnace by the rules 163 lbs Combustion chamber plates: Material S Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 7/8" + L
 Pitch of stays to ditto: Sides 8" x 8 1/4" Back 8" 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 3/8" Area supported by each stay 68 sq Working pressure by rules 170 lbs End plates in steam space:
 Material S Thickness 1 1/16" Pitch of stays 18 x 15 3/4" How are stays secured d nuts Working pressure by rules 165 Material of stays S
 Diameter at smallest part 2.53 Area supported by each stay 283.5 sq Working pressure by rules 161 lbs Material of Front plates at bottom S
 Thickness 3/4" Material of Lower back plate S Thickness 3/4" Greatest pitch of stays 13" Working pressure of plate by rules 231 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates S Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9" x 8 1/4"
 Pitch across wide water spaces 14" Working pressures by rules 206 lbs Girders to Chamber tops: Material S Depth and
 thickness of girder at centre 7 3/4" Length as per rule 29.2" Distance apart 8 1/4" Number and pitch of Stays in each 2 of 8 1/4"
 Working pressure by rules 176 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 —

DONKEY BOILER— Description *Jane patent*
 Made at *Gateshead* By whom made *Clark Chapman & Co* When made *1895* Where fixed *Stoke held*
 Working pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* No. of Certificate *4544* Fire grate area *11 1/2* Description of safety valves *Spring loaded*
 No. of safety valves *1* Area of each *7.04* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *yes* If steam from main boilers enter the donkey boiler *no* Diameter of donkey boiler *4' 9"* Length *11' 0"* Material of shell plates *S* Thickness *3/8*
 Description of riveting long. seams *DR lap* Diameter of rivet holes *3/4* Whether punched or drilled *drilled* Pitch of rivets *2 1/2*
 Lap of plating *3 1/2* Per centage of strength of joint *72.5* Thickness of shell crown plates *1/2* Radius of do. *5 1/2* No. of Stays to do. *3*
 Dia. of stays *5" x 3/8* Diameter of furnace Top *1' 10"* Bottom *3' 11"* Length of furnace *3' 11"* Thickness of furnace plates *5/8* Description joint *S.R. lap* Thickness of furnace crown plates *3/8* Stayed by *tubes* Working pressure of shell by rules *94 lbs*
 Working pressure of furnace by rules *104* Diameter of uptake *1' 2"* Thickness of uptake plates *13/32* Thickness of water tubes *6/16*

SPARE GEAR. State the articles supplied:— *1 set of connecting rod top & bottom end bolts & nuts. 2 main turning bolts & nuts. 1 set of coupling bolts & nuts. 1 set of feed valve pump & valves. propeller nuts bolts & assorted iron.*

The foregoing is a correct description,
WILLIAM ALLAN & CO. LIMITED. Manufacturers of Marine Engines & Boilers.
Henry Barnes SECRETARY

General Remarks (State quality of workmanship, opinions as to class, &c. *Machinery and boilers constructed under special survey materials & workmanship good efficient. Watertight doors & sluices good. Engines & boilers examined under steam & found satisfactory. In my opinion this vessel is eligible for the notation of + L.M.C. 5/95*

It is submitted that
 this vessel is eligible for
 THE RECORD + L.M.C. 5-95

W.A.
20.5-95

[Large handwritten signature]

Certificate (if required) to be sent to
 The amount of Entry Fee. £ *2* : : : When applied for,
 Special £ *20* : *14* : : *15 May 1895*
 Donkey Boiler Fee £ : : : When received,
 Travelling Expenses (if any) £ : : : *14 May 1895*

S. J. Hindle
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES 21 MAY 1895**
 Assigned *+ L.M.C. 5-95*

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

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