

REPORT ON MACHINERY.

Port of SunderlandReceived at London Office WED. 3 SEP 1902

No. in Survey held at Sunderland Date, first Survey 28th Jan'y Last Survey 21st Aug. 1902
 Reg. Book. on the Screw Steamer "Hindustan" (Number of Visits 11) Tons { Gross 3756.23
 Net 2388.95
 Master J. Littlehales Built at Sunderland By whom built Short Bros When built 1902
 Engines made at Sunderland By whom made J. Dickinson & Sons Ltd (565) when made 1902
 Boilers made at Sunderland By whom made J. Dickinson & Sons Ltd when made 1902
 Registered Horse Power 346 Owners The Hindustan Steam Ship Co Ltd Port belonging to Sunderland
 Nom. Horse Power as per Section 28 346 Is Refrigerating Machinery fitted no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 25-42-68 Length of Stroke 48 Revs. per minute 70 Dia. of Screw shaft 14-24-31 Lgth. of stern bush 5-0
 Dia. of Tunnel shaft 12-72 Dia. of Crank shaft journals 13-38 Dia. of Crank pin 13-38 Size of Crank webs flat Dia. of thrust shaft under collars 13-38 Dia. of screw 17-6 Pitch of screw 17-9 No. of blades 4 State whether moveable no Total surface 86 1/2 sq ft
 No. of Feed pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work yes
 No. of Donkey Engines 3 Sizes of Pumps 1 automatic compound 6 1/2 x 9 1/2 x 6 1/4 x 12 Feed Pump No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 1 Ballast 8-2 8 x 9 x 10 In Holds, &c. Two 3 1/2 each hold - 2 1/2 fore peak
Three 3 1/2 - 2 1/2 aft well & aft peak - 2 1/4 aft hold
 No. of bilge injections 1 sizes 4 Connected to main to circulating pump CP 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 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 revised 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 5308 sq ft Is forced draft fitted no
 No. and Description of Boilers 2 S.E. & L. Multitubular Working Pressure 180 lb Tested by hydraulic pressure to 360 lb
 Date of test 26.7.02 Can each boiler be worked separately yes Area of fire grate in each boiler 66 sq ft No. and Description of safety valves to each boiler two direct spring Area of each valve 9.6 sq in Pressure to which they are adjusted 185 lb Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 16-6" Length 11-0" Material of shell plates steel
 Thickness 1 1/8" Range of tensile strength 32 Are they welded or flanged no Descrip. of riveting: cir. seams D.R. Riv long. seams J.R. & A. Stale
 Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 10" 10-10-10 width of butt straps 1-10 3/8
 Per centages of strength of longitudinal joint 91.5% Working pressure of shell by rules 213 lb Size of manhole in shell 16 x 12
 Size of compensating ring 9 1/8 x 1 1/16" No. and Description of Furnaces in each boiler 3 Adams Material steel Outside diameter 4-1 1/2
 Length of plain part top Thickness of plates bottom 11/16" Description of longitudinal joint welded No. of strengthening rings 2
 Working pressure of furnace by the rules 180 lb Combustion chamber plates: Material steel Thickness: Sides 11/16" Back 11/16" Top 11/16" Bottom 1 1/4"
 Pitch of stays to ditto: Sides 9 1/8 x 9 3/8 Back 9 x 9 1/2 Top 9 x 9 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lb
 Material of stays steel area at smallest part 2.03 Area supported by each stay 9 1/2 x 9 Working pressure by rules 200 lb End plates in steam space:
 Material steel Thickness 1 1/32" Pitch of stays 1 1/2 x 16 3/4 How are stays secured 3 rivets Working pressure by rules 240 lb Material of stays steel
area at smallest part 6.1 Area supported by each stay 1 1/2 x 16 3/4 Working pressure by rules 208 Material of Front plates at bottom steel
 Thickness 7/8" Material of Lower back plate steel Thickness 7/8" Greatest pitch of stays 13 1/4 Working pressure of plate by rules 180 lb
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 29/32 Back 29/32 Mean pitch of stays 9"
 Pitch across wide water spaces 13 1/4" Working pressures by rules 180.5 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8 x 1 1/4 x 21 Length as per rule 35 7/16" Distance apart 9" Number and pitch of Stays in each 3 of 9 1/2 pitch
 Working pressure by rules 200 lb 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
 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— No. *one* Description *Cylindrical Multitubular - 2 plain furnaces*
 Made at *Stockton* By whom made *Riley Bros* When made *17.7.02* Where fixed *Stockhold*
 Working pressure *90 lb* tested by hydraulic pressure to *180 lb* No. of Certificate *2793* Fire grate area *28 sq ft* Description of safety valves *direct spring*
 No. of safety valves *two* Area of each *7.0* 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 *10.6* Length *10.0* Material of shell plates *Steel* Thickness *19/32* Range of tensile strength *27/32* Descrip. of riveting long. seams *D. Batt. Straps* Dia. of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *4"*
 Lay of plating *9 1/2* Per centage of strength of joint *86.2%* Rivets *86.2%* Thickness of shell plates *32* Radius of do. *fulch* No. of Stays to do. *16 1/4 x 20 1/2*
 Dia. of stays *3 1/4* Diameter of furnace *36* Bottom *L* Length of furnace *6.7 3/4* Thickness of furnace plates *1/2* Description of joint *weld* Thickness of furnace plates *1/2* Stayed by *1 1/4* eff. c/s *8" x 9" p. nuts* Working pressure of shell by rules *97 lb*
 Working pressure of furnace by rules *93 lb* Diameter of uptake *3 1/4* Thickness of uptake plates *31/32* Thickness of stay tubes *5/16*

SPARE GEAR. State the articles supplied: *Two top end bolts and nuts. two bottom end bolts and nuts. two main bearing bolts and nuts. Spare coupling bolts and nuts. Spare feed and bilge pump valves, assorted iron bolts and nuts - Spare propeller. Spare tail end shaft.*

The foregoing is a correct description,
John Dickinson & Sons, Limited

Manufacturer *S. J.*

Dates { During progress of work in shops - -
 of Survey { During erection on board vessel - -
 while building { Total No. of visits *11*

Director

1902. - Jan 28. Mar 6. 10. 11. 21. July 25. 26. 29. 31. Aug 15. 21.

Is the approved plan of main boiler forwarded herewith *yes*

" " " donkey " " " *no*

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

Material of screw shaft *cast iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *yes*
 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 ✓
 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 ✓
 If two liners are fitted, is the shaft lapped or protected between the liners ✓

*The machinery built under special survey the material and workmanship found good and efficient
 The main boilers and steam pipes tested under hydraulic pressure to 360 lb per square inch and found sound and efficient in every respect at that pressure -*

The engines tried under steam at their working pressure and found satisfactory -

In my opinion this vessel is worthy of the notification of L.M.C. 8.02 to be made in the Register Book -

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 8.02

The amount of Entry Fee. £ *3* : : When applied for, *2.9.19*
 Special £ *37* : *6* : :
 Donkey Boiler Fee £ : : : When received, *5.9.02*
 Travelling Expenses (if any) £ : : :

Leonard Halliwell
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 5 SEP 1902

Assigned

+ L.M.C. 8.02



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