

REPORT ON MACHINERY.

Port of Sunderland

Received at London Office THUR. 4 DEC 1902

No. in Survey held at Sunderland Date, first Survey 9th Sept. Last Survey 18th Nov. 1902
Reg. Book. (Number of Visits 21)

on the Screw Steamer "Carisbrook" Tons { Gross 2784
Net 1785

Master — Barton Built at Sunderland By whom built J. Blumer & Co When built 1902

Engines made at Sunderland By whom made J. Dickinson & Sons Ltd when made 1902

Boilers made at Sunderland By whom made J. Dickinson & Sons Ltd when made 1902

Registered Horse Power Owners Whitby S.S. Co Ltd Port belonging to Whitby

Nom. Horse Power as per Section 28 263 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 23 - 38.62 Length of Stroke 42 Revs. per minute 70 Dia. of Screw shaft as per rule 12.70 Lgth. of stern bush 51"

Dia. of Tunnel shaft as per rule 11.037 Dia. of Crank shaft journals as per rule 11.57 Dia. of Crank pin 11.58 Size of Crank webs patent Dia. of thrust shaft under collars 11.98 Dia. of screw 16'-0" Pitch of screw 16'-0" No. of blades 4 State whether moveable no Total surface 71 sq ft

No. of Feed pumps 2 Diameter of ditto 3 1/4 Stroke 21" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 4 1/4 Stroke 21" Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps Duplex feed 5 1/4 x 3 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps Ballast 8 x 9 x 10

In Engine Room Two 3" each wing. 3" Tunnel well In Holds, &c. two of 3" each hold. Fore peak 2 1/2"

No. of bilge injections 1 sizes 4 Connected to condenser, or to circulating pump CP Is a separate donkey suction fitted in Engine room & size 4 1/2" 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 ruvernel 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 4118 sq ft. Is forced draft fitted no

No. and Description of Boilers Two S.E. G.L. multitubular Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs

Date of test 3.11.02 Can each boiler be worked separately yes Area of fire grate in each boiler 55 sq ft. No. and Description of safety valves to each boiler two direct 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 18" Mean dia. of boilers 15'-0" Length 10'-6" Material of shell plates Steel

Thickness 1 3/32 Range of tensile strength 28/32 Are they welded or flanged no Descrip. of riveting: cir. seams D.R. Lap long. seams tri R. D.B.S

Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8' 3/16" Ins. of plates or width of butt straps 17 5/8"

Per centages of strength of longitudinal joint 91.7% Working pressure of shell by rules 160 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 8 3/8 x 1 3/32 No. and Description of Furnaces in each boiler 3 plain Material Steel Outside diameter 3'-6"

Length of plain part top 4'-1" Thickness of plates bottom 6 1/4" Description of longitudinal joint weld No. of strengthening rings none

Working pressure of furnace by the rules 162 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 1/16 Top 5/8 Bottom 1 1/8

Pitch of stays to ditto: Sides 9 1/8 x 9 1/8 Back 10 x 9 1/2 Top 9 1/8 x 9 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 162 lbs

Material of stays Steel Diameter at smallest part 1.6 Area supported by each stay 10 x 9 1/2 Working pressure by rules 164 lbs End plates in steam space:

Material Steel Thickness 1 1/2 Pitch of stays 16 1/2 x 18 1/4 How are stays secured 8.9 x 8.0 Working pressure by rules 166 lbs Material of stays Steel

Diameter at smallest part 2.53 Area supported by each stay 18 1/4 x 16 1/2 Working pressure by rules 164 lbs Material of Front plates at bottom Steel

Thickness 3/4 Material of Lower back plate Steel Thickness 1/16 Greatest pitch of stays 10 x 9 1/2 Working pressure of plate by rules 172 lbs

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 Material of tube plates Steel Thickness: Front 1 1/16 Back 3/4 Mean pitch of stays 9"

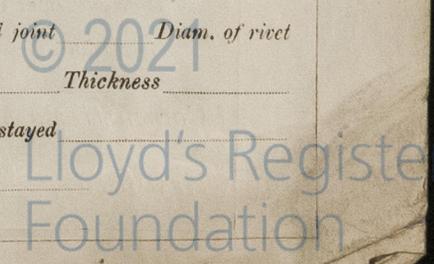
Pitch across wide water spaces 15 1/4 Working pressures by rules 195 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/8 x 3 1/4 x (2) Length as per rule 30 1/16 Distance apart 9 1/8 Number and pitch of Stays in each 2 of 9 1/8 pitch

Working pressure by rules 161 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 sent



DONKEY BOILER— No. *one* Description *S.E. Cylindrical Multitubular, Two plain furnace*
 Made at *Sunderland* By whom made *J. Dickinson & Sons Ltd* When made *3.11.02* Where fixed *on deck*
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *2104* Fire grate area *19.49* Description of safety valves *direct Spring*
 No. of safety valves *two* Area of each *7.05* Pressure to which they are adjusted *80 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Dia. of donkey boiler *9' 0"* Length *8' 6"* Material of shell plates *Steel* Thickness *19/32* Range of tensile strength *28/32* Descrip. of riveting long. seams *in Riv. Lap* Dia. of rivet holes *13/16* Whether punched or drilled *drilled* Pitch of rivets *3 1/16*
 Lap of plating *5 1/16* Per centage of strength of joint *76.7%* Rivets *65%* Thickness of shell *End* plates *44/64* Radius of do. No. of Stays to do *2 1 1/8*
 Dia. of stays. Diameter of furnace Top *2' 6"* Bottom *1'* Length of furnace *5' 6"* Thickness of furnace plates *13/32* Description of joint *weld* Thickness of furnace *inner* plates *1/2"* Stayed by *1 1/4 S.S. riveted, 8 1/8 x 9 pitch* Working pressure of shell by rules *91 lb*
 Working pressure of furnace by rules *88 lb* Diameter of *water* tubes *3 1/4* Thickness of *water* tubes *7 1/4 - 8 1/16* Thickness of *water* tubes *1/4*

SPARE GEAR. State the articles supplied:— *Spare propeller. — Two 10th 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.*

The foregoing is a correct description,
J. Dickinson & Sons, Limited Manufacturer.

Dates of Survey while building
 During progress of work in shops - -
 During erection on board vessel - -
 Total No. of visits *21*
 Director *1902. — Sep. 9. 11. 17. Oct. 1. 7. 8. 9. 13. 14. 21. 27. 28. Nov. 1. 2. 5. 6. 7. 10. 11. 14. 18.*
 Is the approved plan of main boiler forwarded herewith *yes*
 Machinery similar to *of Darwin* donkey " " " " *no*

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

Material of screw shaft *Wrot 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 banded *✓*
 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 320 lb and found sound and efficient in every respect at that pressure. — The Engines tried under steam at their working pressures, and found satisfactory. — In my opinion this vessel is worthy of the notification of R.M.C. 11.02 to be made in the Register Book. —

It is submitted that this vessel is eligible for THE RECORD — L.M.C. 11.02

J.S. 4.12.02
 4.12.02

The amount of Entry Fee... £ 2 : :
 Special... £ 33 3 : :
 Donkey Boiler Fee... £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 15.11.02
 When received, 17.11.02

W.D. Leonard Hallcross.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 5 DEC 1902**
 Assigned *J. Dickinson & Sons*

MACHINERY CERTIFICATE WRITTEN.



Sunderland.

Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.