

REPORT ON MACHINERY.

Port of MIDDLESBROUGH ON TEES

Received at London Office MON 25 JUL 1898

No. in Survey held at Stockton
Reg. Book.

Date, first Survey 2nd Dec 1897 Last Survey 14th July 1898
(Number of Visits 36)

on the S. S. "Clara" Tons { Gross 2450
Net 1538

Master J. R. Cox Built at Thornaby By whom built Richardson, Duck & Co When built 1898

Engines made at Stockton By whom made Blair & Coy Ltd when made 1898

Boilers made at Stockton By whom made Blair & Coy Ltd when made 1898

Registered Horse Power 245 Owners Burdick & Cook Port belonging to London

Nom. Horse Power as per Section 28 245 Is Electric Light fitted no

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3

Diameter of Cylinders 22 1/2", 37 1/4" & 61" Length of Stroke 42" Revolutions per minute 57 Diameter of Screw shaft as per rule 10.8 7/14
as fitted 12 1/2"

Diameter of Tunnel shaft as per rule 10 1/3 Diameter of Crank shaft journals 12" Diameter of Crank pin 12 1/2" Size of Crank webs 9 1/2" x 8 1/2" 13
as fitted 11 3/4"

Diameter of screw 16-0" Pitch of screw 16-6" No. of blades 4 State whether moveable no Total surface 73 sq. ft.

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 4 1/2" Stroke 30" Can one be overhauled while the other is at work yes

No. of Donkey Engines 2 Sizes of Pumps 9" x 10" 4" x 8" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three Centre 3 1/2" rings 5" dia. In Holds, &c. Fore, Main & aft holds
two each 3" dia. After most one 3" dia. Tunnel well 2 1/2" dia.

No. of bilge injections 1 sizes 7 Connected to condenser, or to circulating pump yes 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 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 in stocks Is the screw shaft tunnel watertight apparently

Is it fitted with a watertight door yes worked from upper platform

BOILERS, &c.— (Letter for record (5) Total Heating Surface of Boilers 3760 sq. ft. Is forced draft fitted no

No. and Description of Boilers 2 S.E. Multitubular Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs

Date of test 7.6.98 Can each boiler be worked separately yes Area of fire grate in each boiler 50 sq. No. and Description of safety valves to each boiler two dir. act. Spring Area of each valve 7.06 sq. 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 24" Mean diameter of boilers 14-7 7/8"

Length 10' 0" Material of shell plates steel Thickness 1 7/32" Description of riveting: circum. seams und. r. lap long. seams d. butt str.

Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 1 row 3 3/8" 2 rows 4 3/16" Lap of plates & width of butt straps 6 1/2" & 19 1/4"

Per centages of strength of longitudinal joint rivets 89 Working pressure of shell by rules 169 lbs Size of manhole in shell 17" x 13" plate 85

Size of compensating ring 31 x 27 x 1 7/32" No. and Description of Furnaces in each boiler 3 corrugated Material steel Outside diameter 44"

Length of plain part top 36-3" Thickness of plates crown 1 1/2" Description of longitudinal joint welded No. of strengthening rings — bottom 1 1/2"

Working pressure of furnace by the rules 171 lbs Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 3/32"

Pitch of stays to ditto: Sides 7 3/4" x 7 1/4" Back 7 1/2" x 6 3/4" Top 7 1/2" x 7 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs

Material of stays steel Diameter at smallest part 1 7/16" Area supported by each stay 56.1 sq. Working pressure by rules 183 lbs End plates in steam space: Material steel Thickness 1 1/16" Pitch of stays 15" How are stays secured A. nuts Working pressure by rules 185 lbs Material of stays steel

Diameter at smallest part 2 3/8" Area supported by each stay 225 sq. Working pressure by rules 197 lbs Material of Front plates at bottom steel

Thickness 1" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 12" Working pressure of plate by rules 240 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 5/8" & 4 1/2" Material of tube plates steel Thickness: Front 1" Back 1 1/16" Mean pitch of stays 9 1/8"

Pitch across wide water spaces 14" Working pressures by rules 195 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7" x 1 1/2" Length as per rule 27 1/2" Distance apart 7 1/2" Number and pitch of Stays in each 3. 7 1/4"

Working pressure by rules 174 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 *Multitubular 2 plain furnaces*
 Made at *Stockton* By whom made *J. Sudron & Co L^{rs}* When made *27.5.98* Where fixed *Wokehold.*
 Working pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* No. of Certificate *1788* Fire grate area *30* Description of safety valves *d. Spring*
 No. of safety valves *2* Area of each *7⁰* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *10:6* Length *10:0* Material of shell plates *Steel* Thickness *9/16*
 Description of riveting long. seams *d. butt straps* Diameter of rivet holes *19/16* Whether punched or drilled *drilled* Pitch of rivets *2 1/2*
 Lap of plating — Per centage of strength of joint Rivets *91* Thickness of shell plates *11/16* Radius of do. *7/16* Pitch of stays to do. *15x13*
 Dia. of stays *2 1/16* Diameter of furnace *Top 36* Bottom — Length of furnace *81* Thickness of furnace plates *Top 17/32* Description of joint *d. butt* Thickness of furnace plates *1/2 & 9/16* Stays *1 1/4 stays 9" x 7 1/2 p.* Working pressure of shell by rules *95 lb*
 Working pressure of furnace by rules *99 lb* Diameter of uptake *tubes 3 1/4* Thickness of uptake plates *11/16* Thickness of water tubes *5/16*

SPARE GEAR. State the articles supplied:— *Eccentric strap & liners. Link block and slide rod. Main & donkey check valves. Feed & bilge pump valves. Top and bottom end bolts & nuts. Main bearing and Coupling bolts.*

The foregoing is a correct description,
FOR BLAIR & CO., LIMITED. Manufacturers of Engines & Main boilers
W. Borrie

SECRETARY.
 Dates During progress of work in shops— 1897 Dec. 2. 4. 13. 20. 1898 Jan. 11. Feb. 2. 22. 25. May 4. 11. 13. 14. 28. June 2. 6. 7. 8. 9. 10. 14. 15.
 Dates of Survey while building board vessel— 23. 24. 27. 28. 29. 30 July 1. 4. 5. 7. 11. 12. 13. 21.
 Total No. of visits *Thirty six*

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

These engines and boilers have been built under special survey and are of good workmanship and materials. They have been well and securely fitted on board the vessel and on completion tried under steam at mooring with good results. —

*The machinery is now in good working order and in my opinion eligible to the notation: **L.M.C. 7.98.** —*

It is submitted that this vessel is eligible for THE RECORD.
L.M.C. 7.98

Ld
25/7/98

The amount of Entry Fee... £ 2 : : : When applied for.
 Special ... £ 32 : : : 22. 4. 1898
 Donkey Boiler Fee ... £ : : : When received.
 Travelling Expenses (if any) £ : : : 22. 4. 98

J. M. Sanderson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Middlesbrough, Tees

Committee's Minute **TUES. 26 JUL 1898**

MACHINERY CERTIFICATE WRITTEN.

Assigned

+ L.M.C. 7.98



Lloyd's Register Foundation