

REPORT ON MACHINERY.

Port of *Sunderland*

Received at London Office

13

No. in Survey held at
Reg. Book.*Sunderland*Date, first Survey, *14th Oct 1901* Last Survey *8th March 1902*(Number of Visits *41*)

on the

*Steel S. S. Manaton*Tons { Gross *4025*
Net *2623*

Master

Page

Built at

Sunderland

By whom built

John Priestman & Co

When built

1902

Engines made at

Sunderland

By whom made

*George Clark Ltd*when made *1902*

Boilers made at

Sunderland

By whom made

*George Clark Ltd*when made *1902*

Registered Horse Power

Owners

Commercial Steamship Co

Port belonging to

London

Nom. Horse Power as per Section 28

312

Is Refrigerating Machinery fitted

No

Is Electric Light fitted

No

ENGINES, &c.—Description of Engines

*Tri compound*No. of Cylinders *3*No. of Cranks *3*Dia. of Cylinders *24"-21"-16"*Length of Stroke *45"*Revs. per minute *40*

Dia. of Screw shaft

as per rule *13.5"*as fitted *13.5"*Lgth. of stern bush *4'-8"*

Dia. of Tunnel shaft

as per rule *11.69"*

Dia. of Crank shaft journals

as per rule *12.29"*Dia. of Crank pin *12.5"*Size of Crank webs *18x8x8"*

Dia. of thrust shaft under

collars *13.4"*Dia. of screw *14-1.5"*Pitch of screw *14-1.5"*No. of blades *4*

State whether moveable

No

Total surface

*89.6 sq ft*No. of Feed pumps *Two*Diameter of ditto *3.4"*Stroke *26"*

Can one be overhauled while the other is at work

*yes*No. of Bilge pumps *Two*Diameter of ditto *4.4"*Stroke *26"*

Can one be overhauled while the other is at work

*yes*No. of Donkey Engines *Two*Sizes of Pumps *4.5x4.5x6"**4.5x4.5x10"*

No. and size of Suctions connected to both Bilge and Donkey pumps

*Two in each, 3.5" diameter*In Engine Room *Three, 3.5" diameter*In Holds, &c. *Two in each, 3.5" diameter**one*No. of bilge injections *one*sizes *5.5"*

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 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

new vessel

Is the screw shaft tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from

Top platform

BOILERS, &c.—

(Letter for record *A.*)

Total Heating Surface of Boilers

4840 sq ft

Is forced draft fitted

*no*No. and Description of Boilers *2 single ended ordinary marine type*

Working Pressure

160 lbs

Tested by hydraulic pressure to

*320*Date of test *29-1-02*

Can each boiler be worked separately

yes

Area of fire grate in each boiler

60 sq ft

No. and Description of safety valves to

each boiler 2 Direct spring

Area of each valve

9.6 sq ft

Pressure to which they are adjusted

160 lbs

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

18"

Mean dia. of boilers

15'-9"

Length

10'-6"

Material of shell plates

*S*Thickness *1.5"*

Range of tensile strength

28.5-32

Are they welded or flanged

flanged

Descrip. of riveting: cir. seams

D.R.L.

long. seams

TR.D.B.S.

Diameter of rivet holes in long. seams

1.6"

Pitch of rivets

4 15/16"

Top of plates, or width of butt straps

18 1/4"

Per centages of strength of longitudinal joint

rivets *89*plate *85*

Working pressure of shell by rules

164 lbs

Size of manhole in shell

16" x 13"

Size of compensating ring

8 3/4" x 1 3/16"

No. and Description of Furnaces in each boiler

3 Plain

Material

S

Outside diameter

48.6"

Length of plain part

top *6 ft*bottom *5'-6"*

Thickness of plates

crown *4 1/4"*

Description of longitudinal joint

welded

No. of strengthening rings

2 on bottom

Working pressure of furnace by the rules

160 lbs

Combustion chamber plates: Material

S

Thickness: Sides

1 1/16"

Back

10"

Top

9 3/4"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

162 lbs

Material of stays

Iron

Diameter at smallest part

1 3/4"

Area supported by each stay

1000 sq in

Working pressure by rules

174 lbs

Material of stays

Iron

Thickness

1 5/32"

Pitch of stays

14" x 21"

How are stays secured

nuts

Working pressure by rules

164 lbs

Material of Front plates at bottom

S

Diameter at smallest part

3 1/8"

Area supported by each stay

8230 sq in

Working pressure by rules

167 lbs

Material of Lower back plate

S

Thickness

3/4"

Greatest pitch of stays

15"

Working pressure of plate by rules

162 lbs

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/2" x 4 3/8"

Material of tube plates

S

Thickness: Front

15/16" + 1/16"

Back

3/4"

Mean pitch of stays

9"

Pitch across wide water spaces

14 1/4"

Working pressures by rules

160 lbs

Girders to Chamber tops: Material

S

Depth and

thickness of girder at centre

8" x 13/16" x 2"

Length as per rule

2'-6"

Distance apart

9'

Number and pitch of Stays in each

2 stays 9 3/4"

Working pressure by rules

142 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

yes

Lloyd's Register

Foundation

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W566-0135

DONKEY BOILER— No. *One* Description *Vertical Blake Boiler*
 Made at *Middleboro* By whom made *Richardson, Westgate & Co Ltd* When made *11-2-02* Where fixed *On Deck*
 Working pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* No. of Certificate *2683* Fire grate area *24 sq* Description of safety valves *Direct spring*
 No. of safety valves *2* Area of each *4.90* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *4'-0"* Length *16'-6"* Material of shell plates *Iron* Thickness *7/16"* Range of tensile strength *27-32* Descrip. of riveting long. seams *Double riveted lap* Dia. of rivet holes *15/16"* Whether punched or drilled *drilled* Pitch of rivets *3"*
 Lap of plating *4 5/8"* Per centage of strength of joint *69.5* Rivets *68.8* Thickness of shell crown plates *7/16"* Radius of do. *Hemispherical* No. of Stays to do. *✓*
 Dia. of stays. *✓* Diameter of furnace Top *2'-6"* Bottom *5'-3 1/2"* Length of furnace *6'-1 1/2"* Thickness of furnace plates *19/32"* Description of joint *S. R. Lap* Thickness of *c.c.h./rock* plates *7/16"* Stayed by *15" iron stays, riveted 11" 112" pitch* Working pressure of shell by rules *82.9 lbs*
 Working pressure of furnace by rules *82.4 lbs* Diameter of *TUBES 2 3/4" plain* Thickness of *TUBE* plates *F. 3/8"* Thickness of *STAY* tubes *5/16"*

SPARE GEAR. State the articles supplied:—
Top and bottom end connecting rod bolts and nuts, two main bearing bolts and nuts, one set of coupling bolts, feed and bilge pump valves, bolts, nuts, and iron assorted propeller &c.

The foregoing is a correct description,
FOR GEORGE CLARK LIMITED
James C. Clark, Manufacturers of main engine & Boilers only

Dates of Survey
 During progress of work in shops— *1901— Octr 14, 15, 16, 21, 22, 23, 28, 29, 31. Novr 1, 4, 8, 18, 28. Decr 2, 5, 9, 13, 16, 19, 30. 1902— Janr 6, 7, 13, 16, 22, 24, 28. Febr. 4*
 During erection on board vessel— *16, 17, 19, 14, 15, 20, 22, 26, 27. Mar 2, 4, 8.*
 Total No. of visits *41.*
 Is the approved plan of main boiler forwarded herewith *yes*
 " " " donkey " " " *yes*

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

Material of screw shaft *Scrap 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 *fits tightly* If two liners are fitted, is the shaft lapped or protected between the liners *one liner*

The Machinery of this vessel has been constructed under Special Survey, the material and workmanship being good and efficient, and the Engines when tried under steam worked satisfactorily.

The pumps, watertight doors, and steam steering gear are in good working order, and the main steam pipes have been tested by hydraulic pressure to 400 lbs per square inch.

In my opinion, this vessel is eligible for the notification in the Register Book of **✠ L.M.C. 3.02**.

It is submitted that
 this vessel is eligible for
THE RECORD:— L.M.C. 3.02

P. R. Salmon
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
21.3.02

The amount of Entry Fee... £ *3 : 0 : 0* When applied for, *19.3.02*
 Special ... £ *35 : 12 : 0*
 Donkey Boiler Fee ... £
 Travelling Expenses (if any) £
 When received, *22.3.02*

Committee's Minute **FRI. MAR 21 1902**

Assigned

+ L.M.C. 3.02



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Gundoband.

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