

## REPORT ON BOILERS.

No. 96691

Date of writing Report

192

When handed in at Local Office

19 FEB. 1930

Received at London Office

22 FEB 1930

Port of

No. in Survey held at

Birkenhead

Date, First Survey

14/1/29

Last Survey

9/2/30

1930

on the

Twin S.S. 'Sultan Star'

(Number of Visits

160)

(Gross

Tons

Net

Master

Built at

Birkenhead

By whom built

Cammell Laird &amp; Co. Ltd

Yard No. 955

When built 1930

Engines made at

Birkenhead

By whom made

Cammell Laird &amp; Co. Ltd

Engine No. 955

When made 1930

Boilers made at

Birkenhead

By whom made

Cammell Laird &amp; Co. Ltd

Boiler No. 955

When made 1930

Nominal Horse Power

2030

Owners

Blue Star Line Ltd

Port belonging to

London

This boiler fitted into Southern Princess

See Liv. Rev. 8.34

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Chrille &amp; Sons

Total Heating Surface of Boilers

3501 sq ft

Is forced draught fitted

Yes

No. and Description of Boilers

One Single ended Multitubular

(Letter for Record

£ 2.

Coal or Oil fired

fitted for oil, but now using coal

Working Pressure

230 lbs/sq in

Tested by hydraulic pressure to

395 lbs/sq in

Date of test

25.6.29

No. of Certificate

2336

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

75 sq ft

No. and Description of safety valves to each boiler

Two Spring loaded high lift

Area of each set of valves per boiler

per Rule

11.88 sq ft

as fitted

Pressure to which they are adjusted

230 lbs/sq in

Are they fitted with easing gear

Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

30"

Is oil fuel carried in the double bottom under boilers

Yes

Smallest distance between shell of boiler and tank top plating

2'-6"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

17'-0"

Length

12'-2"

Shell plates: Material

Steel

Tensile strength

30-34 tons/sq in

Thickness

1 1/16"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end

lap

Type of seams

Double R. double butt

Diameter of rivet holes in

circ. seams

1 3/4"

long. seams

1 3/4"

Pitch of rivets

4.367"

10 1/2"

Percentage of strength of circ. end seams

plate

60.7

rivets

57

Percentage of strength of circ. intermediate seam

plate

83.3

rivets

47.3

Percentage of strength of longitudinal joints

plate

11.32

rivets

11.32

combined

86

Working pressure of shell by Rules

234 lbs/sq in

Thickness of butt straps

1 1/32"

Material

Steel

No. and Description of Furnaces in each Boiler

4 Corrugated

Length of plain part

top

bottom

Dimensions of stiffening rings on furnace or c.c. bottom

None

Working pressure of furnace by Rules

238 lbs/sq in

Stays in steam space: Material

Steel

Tensile strength

26-30 tons/sq in

Thickness

1 1/32"

Pitch of stays

21 x 16 1/2"

Are stays secured

Double nuts &amp; small plain washers

Working pressure by Rules

236 lbs/sq in

Stays in water space: Material

front Steel

back Steel

Tensile strength

26-30 tons/sq in

Thickness

15/16"

Pitch of stays

25 x 16 1/2"

Pitch of stay tubes in nests

9.2"

Pitch across wide water spaces

13 1/2"

Working pressure

front

256 lbs/sq in

back

258 lbs/sq in

Stays to combustion chamber tops: Material

Steel

Tensile strength

28-32 tons/sq in

Depth and thickness of girder

200 x 9 1/4 x 25 1/32"

Length as per Rule

2'-10 9/16"

Distance apart

8"

No. and pitch of stays

Each

3 x 8 1/8"

Working pressure by Rules

241 lbs/sq in

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons/sq in

Thickness: Sides

1 1/16"

Back

2 1/32"

Top

1 1/16"

Bottom

1 3/16"

Pitch of stays to ditto: Sides

8 3/4 x 8"

Back

8 x 8"

Top

8 1/8 x 8"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

234 lbs/sq in

Front plate at bottom: Material

Steel

Tensile strength

15 1/16"

26-30 tons/sq in

Thickness

15 1/16"

Lower back plate: Material

Steel

Tensile strength

26-30 tons/sq in

Thickness

29/32"

Pitch of stays at wide water space

14 1/2 x 6 3/4"

Are stays fitted with nuts or riveted over

nuts

Shipping Pressure

248 lbs/sq in

Main stays: Material

Steel

Tensile strength

28-32 tons/sq in

At body of stay,

3 1/4"

No. of threads per inch

6

Area supported by each stay

346 sq in

Over threads

232 lbs/sq in

Screw stays: Material

Iron

Tensile strength

2 1/2 tons/sq in

At turned off part,

15 1/8 x 1 3/4"

No. of threads per inch

9

Area supported by each stay

65 sq in

Over threads

15 1/8 x 1 3/4"

No. of threads per inch

9

Area supported by each stay

65 sq in



Working pressure by Rules **233 1/2** Are the stays drilled at the outer ends **No** Margin stays: Diameter **1 3/4"**  
No. of threads per inch **9** Area supported by each stay **76 sq"** Working pressure by Rules **239 1/2**  
Tubes: Material **Iron lap welded** External diameter **2 1/2"** Thickness **3/16"** No. of threads per inch **9**  
Pitch of tubes **3 1/16" x 3 7/16"** Working pressure by Rules **235 1/2** Manhole compensation: Size of opening  
shell plate **18 x 22"** Section of compensating ring **2 1/4" x 1 1/16"** No. of rivets and diameter of rivet holes **42 @ 1 3/4"**  
Outer row rivet pitch at ends **10 1/2"** Depth of flange if manhole flanged **3 1/2"** Steam Dome: Material **V**  
Tensile strength **V** Thickness of shell **V** Description of longitudinal joint **V**  
Diameter of rivet holes **V** Pitch of rivets **V** Percentage of strength of joint **V**  
Internal diameter **V** Working pressure by Rules **V** Thickness of crown **V** No. and diameter  
stays **V** Inner radius of crown **V** Working pressure by Rules **V**  
How connected to shell **V** Size of doubling plate under dome **V** Diameter of rivet holes and pitch  
of rivets in outer row in dome connection to shell **V**

Type of Superheater **Sagden's Uplate type** Manufacturers of **Tubes**  
Number of elements **6432** Material of tubes **Solid drawn steel** Internal diameter and thickness of tubes **1" x 170W5**  
Material of headers **best steel** Tensile strength **24-28 tons** Thickness **3/4" plate** Can the superheater be shut off  
the boiler be worked separately **Yes** Is a safety valve fitted to every part of the superheater which can be shut off from the boiler **Yes**  
Area of each safety valve **3.14 sq"** Are the safety valves fitted with easing gear **Yes** Working pressure as  
Rules **230 1/2** Pressure to which the safety valves are adjusted **235 1/2** Hydraulic test pressure  
tubes **V** castings **V** and after assembly in place **460 lb sq"** Are drain cocks or valves fitted  
to free the superheater from water where necessary **Yes**

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with **Yes**

**GAMMELL LAIRD AND COMPANY LIMITED.**

The foregoing is a correct description,

**SECRETARY**

Dates of Survey **During progress of work in shops - -**  
while building **During erection on board vessel - -**

**See Machy rpt.**

Are the approved plans of boiler and superheater forwarded herewith **Yes**  
(If not state date of approval.)

Total No. of visits

### GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

This boiler has been constructed under special Survey and is in accordance with the Rules and the approved plan. The workmanship good. It has been satisfactorily fitted on board, and examined under steam.

Survey Fee ... £

When applied for,

192

Travelling Expenses (if any) £

When received,

192

Committee's Minute

**LIVERPOOL**

**21 FEB. 1930**

Assigned

**See accompanying machy rpt.**

**J. J. Milton**

Engineer Surveyor to Lloyd's Register of Shipping

**FRI. 15**

**22920**



Lloyd's Register  
Foundation