

## REPORT ON BOILERS.

No. 96820.

Received at London Office

22 MAR 1930

Date of writing Report

192

When handed in at Local Office

20 MAR. 1930

Port of

LIVERPOOL

No. in Survey held at  
Reg. Book

Birkenhead

Date, First Survey

1/7/29

Last Survey

17/3/

1930.

(Number of Visits

93

Gross

4680

Tons

Net

No. in Survey held at  
Reg. Book

9526 on the

S. S. 'Benedict'

Master

Built at

Birkenhead

By whom built

Cammell Laird &amp; Co

Yard No.

963

When built

1930

Engines made at

Birkenhead

By whom made

Cammell Laird &amp; Co

Engine No.

963

When made

1930

Boilers made at

Birkenhead

By whom made

Cammell Laird &amp; Co

Boiler No.

963

When made

1930

Nominal Horse Power

608

Owners

Booth Steamship Co Ltd

Port belonging to

Liverpool

## MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

David Colvilles &amp; Co

(Letter for Record

S

Total Heating Surface of Boilers

8907 sq ft

Is forced draught fitted

Ylo

Coal or Oil fired

Coal

No. and Description of Boilers

Three Cylindrical Multitubular

Working Pressure

220 lb/sq in

Tested by hydraulic pressure to

380 lb/sq in

Date of test

18.10.29

No. of Certificate

2347

Can each boiler be worked separately

Ylo

Area of Firegrate in each Boiler

65 sq ft

No. and Description of safety valves to each boiler

Two, spring loaded

Area of each set of valves per boiler

per Rule 15.86  
as fitted 16.59

Pressure to which they are adjusted

225 lb/sq in

Are they fitted with easing gear

Ylo

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

Y

Smallest distance between boilers or uptakes and bunkers or woodwork

15"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

2'-6"

Is the bottom of the boiler insulated

Ylo

Largest internal dia. of boilers

16'-6"

Length

12'-1 1/2"

Shell plates: Material

Steel

Tensile strength

29-33 tons/sq in

Thickness

1 5/8"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end 29-33 tons/sq in  
inter. 29-33 tons/sq in

long. seams

Double R. Double butt

Diameter of rivet holes in

circ. seams 1 1/8"

long. seams 1 1/8"

Pitch of rivets

4' 181"

Percentage of strength of circ. end seams

plate 59.6  
rivets 52

Percentage of strength of circ. intermediate seam

plate 59.6  
rivets 52

Percentage of strength of longitudinal joint

plate 83.9  
rivets 97.5  
combined 87.3

Working pressure of shell by Rules

223 lb/sq in

Thickness of butt straps

outer 1 3/32"  
inner 1 1/32"

No. and Description of Furnaces in each Boiler

Three Corrugated 3cf

Material

Steel

Tensile strength

26-30 tons/sq in

Smallest outside diameter

48.5"

Length of plain part

top 1'  
bottom 1'

Thickness of plates

corru 49"  
bottom 64"

Description of longitudinal joint

weld

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

none

Working pressure of furnace by Rules

232 lb/sq in

End plates in steam space: Material

Steel

Tensile strength

26-30 tons/sq in

Thickness

1 3/8"

Pitch of stays

16 1/2 x 22 1/2"

How are stays secured

Double nuts + plain washers

Working pressure by Rules

228 lb/sq in

Tube plates: Material

front Steel

back Steel

Tensile strength

26-30 tons/sq in

Thickness

1 1/8"

Working pressure

front 366 lb/sq in  
back 227 lb/sq in

Mean pitch of stay tubes in nests

10 5/8"

Pitch across wide water spaces

14 1/4"

Working pressure

front 366 lb/sq in  
back 227 lb/sq in

Girders to combustion chamber tops: Material

Steel

Tensile strength

28-32 tons/sq in

Depth and thickness of girder

at centre

Two plates 10 1/2 x 3/4"

Length as per Rule

37.4"

Distance apart

8"

No. and pitch of stays

in each

Three 2 9/16"

Working pressure by Rules

234 lb/sq in

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons/sq in

Thickness: Sides

23/32"

Back

23/32"

Top

23/32"

Bottom

15/16"

Pitch of stays to ditto: Sides

9 1/2 x 8 1/2"

Back

9 x 9"

Top

9 1/2 x 8 1/2"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

224 lb/sq in

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons/sq in

Thickness

1 1/8"

Lower back plate: Material

Steel

Tensile strength

26-30 tons/sq in

Thickness

3/32"

Pitch of stays at wide water space

17 1/4 x 9"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

247 lb/sq in

Main stays: Material

Steel

Tensile strength

28-32 tons/sq in

Diameter

At body of stay, 3 3/8"  
Over threads

No. of threads per inch

6

Area supported by each stay

3 1/2 sq in

Working pressure by Rules

235 lb/sq in

Screw stays: Material

Steel

Tensile strength

26-30 tons/sq in

Diameter

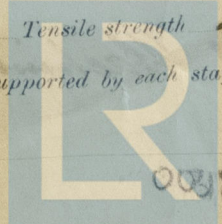
At turned off part, 1 3/4"  
Over threads

No. of threads per inch

9

Area supported by each stay

81 sq in



Lloyd's Register Foundation

Working pressure by Rules *224 lb* Are the stays drilled at the outer ends *10* Margin stays: Diameter *2"* At turned off part, or Over threads  
 No. of threads per inch *9* Area supported by each stay *109 sq* Working pressure by Rules *227 lb*  
 Tubes: Material *B. B. Iron* External diameter *3"* Plain Stay Thickness *5/16"* No. of threads per inch *9*  
 Pitch of tubes *4 1/4" x 4 1/4"* Working pressure by Rules *225 lb* Manhole compensation: Size of opening in shell plate *17 3/4" x 21 3/4"* Section of compensating ring *17 7/8" x 15 7/8"* No. of rivets and diameter of rivet holes *36 @ 1 1/16"*  
 Outer row rivet pitch at ends *10 1/2"* Depth of flange if manhole flanged *3 1/2"* Steam Dome: Material *None*  
 Tensile strength *✓* Thickness of shell *✓* Description of longitudinal joint *✓*  
 Diameter of rivet holes *✓* Pitch of rivets *✓* Percentage of strength of joint *✓* Plate Rivets  
 Internal diameter *✓* Working pressure by Rules *✓* Thickness of crown *✓* No. and diameter of stays *✓* Inner radius of crown *✓* Working pressure by Rules *✓*  
 How connected to shell *✓* Size of doubling plate under dome *✓* Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell *✓*

Type of Superheater *Superheater Cld* Manufacturers of *✓* Tubes Steel castings  
 Number of elements *82 per boiler* Material of tubes *steel* Internal diameter and thickness of tubes *15 7/8" 3 3/8"*  
 Material of headers *Forged steel* Tensile strength *✓* Thickness *1"* Can the superheater be shut off and the boiler be worked separately *Yes*  
 Area of each safety valve *3.14 sq* Is a safety valve fitted to every part of the superheater which can be shut off from the boiler *Yes*  
 Rules *✓* Pressure to which the safety valves are adjusted *225 lb* Working pressure as per Rules *✓* Hydraulic test pressure: *✓*  
 tubes *660 lb* castings and after assembly in place *440 lb* 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*

The foregoing is a correct description,  
**GAMMELL LAIRD AND COMPANY LIMITED.**  
 Manufacturer.

Dates of Survey *See Machinery report.* Are the approved plans of boiler and superheater forwarded herewith *SECRETARY, Yes* (If not state date of approval.)  
 while building *During erection on board vessel* Total No. of visits *✓*

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

*These boilers have been constructed under Special Survey, and are in accordance with the Rules and the approved plans. They have been examined under steam and found satisfactory in all respects.*

Survey Fee ... £ *✓* : When applied for, 192  
 Travelling Expenses (if any) £ *✓* : When received, 192

*J. D. Milson.*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **LIVERPOOL 21 MAR. 1930**

Assigned *See Machinery rpt.* *AKR*