

## REPORT ON BOILERS.

No. 99050

Received at London Office

12 AUG 1931

Date of writing Report

Aug 5<sup>th</sup> 31

When handed in at Local Office

10.8.31

Port of

Liverpool

No. in Survey held at

Birkenhead

Date First Survey

16<sup>th</sup> July 30

Last Survey

7<sup>th</sup> August 1931

Reg. Book

3354

on the

S. S. 'Hilary'

(Number of Visits)

128

Tons

Gross 6184

Net 4350

Master

Built at

Birkenhead

By whom built

Messrs. Cammell Laird &amp; Co. Ltd.

No.

975

When built

1931

Engines made at

Birkenhead

By whom made

Cammell Laird &amp; Co. Ltd.

Engine No.

975

When made

1931

Boilers made at

Birkenhead

By whom made

Cammell Laird &amp; Co. Ltd.

Boiler No.

975

When made

1931

Nominal Horse Power

1033

Owners

The Booth Steamship Co. Ltd.

Port belonging to

Liverpool

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

Manufacturers of Steel

David Colville &amp; Son

(Letter for Record)

Total Heating Surface of Boilers

13200 sq. ft.

Is forced draught fitted

Yes

Coal or Oil fired

Coal

No. and Description of Boilers

Five Single ended Multitubular

Working Pressure

230 lb. sq. in.

Tested by hydraulic pressure to

395 lb. sq. in.

Date of test

3.11.30

No. of Certificate

2374

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

57.6 sq. ft.

No. and Description of safety valves to each boiler

Two spring loaded

Area of each set of valves per boiler

per Rule 13.50

as fitted 16.64

Pressure to which they are adjusted

235 lb. 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

2'-3"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

2'-3"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

15'-7 1/2"

Length

12'-1 7/8"

Shell plates: Material

Steel

Tensile strength

29-33 tons sq. in.

Thickness

1' 9/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end

DR. Lap

long. seams

Double Riv. Double butt

Diameter of rivet holes in

circ. seams 1 5/8"

long. seams 1 5/8"

Pitch of rivets

4' 1/2"

Percentage of strength of circ. end seams

plate 60.6

rivets 50

Percentage of strength of circ. intermediate seam

plate

rivets

Percentage of strength of longitudinal joint

plate 84.5

rivets 92

combined 87.4

Working pressure of shell by Rules

233 lb. sq. in.

Thickness of butt straps

outer 1 1/4"

inner 1 3/8"

No. and Description of Furnaces in each Boiler

Three Corrugated

Material

Steel

Tensile strength

26-30 tons sq. in.

Smallest outside diameter

3'-10 7/8"

Length of plain part

top

bottom

Thickness of plates

crown 4 9/16"

bottom 1 1/4"

Description of longitudinal joint

Weld

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

Yes

Working pressure of furnace by Rules

242 lb. sq. in.

End plates in steam space: Material

Steel

Tensile strength

26-30 tons sq. in.

Thickness

1 7/16"

Pitch of stays

21 1/2" x 21"

How are stays secured

Double nuts &amp; plain washers

Working pressure by Rules

234 lb. sq. in.

Tube plates: Material

front Steel

back Steel

Tensile strength

26-30 tons sq. in.

Thickness

1"

Working pressure

front 266 lb. sq. in.

back 245 lb. sq. in.

Mean pitch of stay tubes in nests

10' 7/8"

Pitch across wide water spaces

14 1/4"

Working pressure

front 266 lb. sq. in.

back 245 lb. sq. in.

Girders to combustion chamber tops: Material

Steel

Tensile strength

28-32 tons sq. in.

Depth and thickness of girder

at centre

2 plates 10' 7/8" x 3/4"

Length as per Rule

3'-1 7/8"

Distance apart

8"

No. and pitch of stays

in each

3 @ 8 3/4"

Working pressure by Rules

235 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

1 5/16"

Pitch of stays to ditto: Sides

9' x 7 3/4"

Back

9' x 8 1/8"

Top

8 3/4" x 8"

Are stays fitted with nuts or riveted over

Nuts

Working pressure by Rules

232 lb. sq. in.

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons sq. in.

Thickness

1"

Lower back plate: Material

Steel

Tensile strength

26-30 tons sq. in.

Thickness

3 1/32"

Pitch of stays at wide water space

15' x 8 1/8"

Are stays fitted with nuts or riveted over

Nuts

Working Pressure

252 lb. sq. in.

Main stays: Material

Steel

Tensile strength

29-33 tons sq. in.

Diameter

At body of stay, or Over threads

3 3/4"

No. of threads per inch

6

Area supported by each stay

471 sq. in.

Working pressure by Rules

242 lb. sq. in.

Screw stays: Material

Steel

Tensile strength

26-30 tons sq. in.

Diameter

At turned off part, or Over threads

1 3/4"

No. of threads per inch

9

Area supported by each stay

78 sq. in.



Working pressure by Rules **235 lb** Are the stays drilled at the outer ends **no** Margin stays: Diameter { At turned off part, or Over threads **2"** ✓  
No. of threads per inch **9** Area supported by each stay **102 sq"** Working pressure by Rules **244 lb** ✓  
Tubes: Material **Iron Lapelle** External diameter { Plain **3"** ✓ Thickness **3/8"** No. of threads per inch **9** ✓  
Pitch of tubes **4 1/4 x 4 1/4** Working pressure by Rules **276 lb** ✓ Manhole compensation: Size of opening in  
shell plate **22 x 18** Section of compensating ring **11 7/8 x 1 7/8** No. of rivets and diameter of rivet holes **36 @ 1 7/8** ✓  
Outer row rivet pitch at ends **10 1/2** Depth of flange if manhole flanged **3 1/2** ✓ Steam Dome: Material **Iron** ✓  
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 **2 1/2** 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 **The Fuelite type** Manufacturers of Tubes { **The Superheaters Ltd. London.**  
Steel castings  
Number of elements **56 per boiler** Material of tubes **Steel** Internal diameter and thickness of tubes **16 7/8 3/16**  
Material of headers **Steel** Tensile strength **?** Thickness **1"** Can the superheater be shut off and  
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 **3.1416 sq"** Are the safety valves fitted with easing gear **yes** Working pressure as per  
Rules **230 lb** Pressure to which the safety valves are adjusted **235 lb** Hydraulic test pressure:  
tubes **690 lb** **steel forgings 690 lb** and after assembly in place **460 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

FOR THE FOREGOING IS A CORRECT DESCRIPTION,

Manufacturer.

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

**See Machinery report**

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

Total No. of visits

Is this Boiler a duplicate of a previous case **no**

If so, state Vessel's name and Report No.

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 plan. The workmanship is good throughout. They have been examined under steam and found satisfactory.**

Survey Fee ... £

When applied for, 19

Travelling Expenses (if any) £

When received, 19

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

LIVERPOOL 11 AUG. 1931

Assigned

**See Machinery rpt.**



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