

REPORT ON BOILERS.

No. 104171.

Received at London Office

-1 AUG 1934

Date of writing Report

July 16th 1934

When handed in at Local Office

28 JULY 1934

Port of

LIVERPOOL

No. in
Reg. Book.

Survey held at

Birkenhead

Date, First Survey

24th Jan'y 1934

Last Survey

12th July 1934

(Number of Visits

82)

Gross

627.580

Tons

Net

226.216

Master

Built at Birkenhead

By whom built

Cammell Laird & Co. Ltd

Yard No. 999

When built 1934

Engines made at

Birkenhead

By whom made

Cammell Laird & Co. Ltd

Engine No. 999

When made 1934

Boilers made at

Birkenhead

By whom made

Cammell Laird & Co. Ltd

Boiler No. 999

When made 1934

Nominal Horse Power

1824

Owners

The Mayor, Aldermen & Burgesses of
The Borough of Liverpool

Port belonging to

Liverpool

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Colville & Co. Ltd, Glasgow & Fordingham Iron Works Ltd

(Letter for Record S)

Total Heating Surface of Boilers

3123 sq ft

Is forced draught fitted

Coal or Oil fired

Coal

No. and Description of Boilers

Three Multitubular Cylindrical

Working Pressure

200 lb sq in

Tested by hydraulic pressure to

350 lb sq in

Date of test

16-5-34

No. of Certificate

2422

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

36.68 sq ft

No. and Description of safety valves to each boiler

Two spring loaded

high lift. See 3/8/34

Area of each set of valves per boiler

per Rule 3.036 sq ft

as fitted

3.534 sq ft

Pressure to which they are adjusted

200 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

✓

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

open floor

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

10'-7 1/2"

Length

11'-8"

Shell plates: Material

Steel

Tensile strength

29-33 tons sq in

Thickness

3 1/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

DR lap

long. seams

Double butt

Diameter of rivet holes in

circ. seams 1 1/16"

long. seams 1 1/16"

Pitch of rivets

2 5/8"

Percentage of strength of circ. end seams

plate 63

rivets 50.5

Percentage of strength of circ. intermediate seam

plate 63

rivets 50.5

Percentage of strength of longitudinal joint

plate 85.6

rivets 92.5

combined 89.6

Working pressure of shell by Rules

205 lb sq in

Thickness of butt straps

outer 3/4"

inner 7/8"

No. and Description of Furnaces in each Boiler

Two Corrugated

Material

Steel

Tensile strength

26-30 tons sq in

Smallest outside diameter

3'-5 1/2"

Length of plain part

top ✓

bottom ✓

Thickness of plates

crown 1 1/32"

bottom 1 1/32"

Description of longitudinal joint

Weld

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

None

Working pressure of furnace by Rules

210 lb sq in

End plates in steam space: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

1"

Pitch of stays

15 1/2" x 1 1/4"

How are stays secured

Double nuts & small washers

Working pressure by Rules

201 lb sq in

Tube plates: Material

front Steel

back Steel

Tensile strength

26-30 tons sq in

Thickness

1 1/16"

Mean pitch of stay tubes in nests

10'-8"

Pitch across wide water spaces

14"

Working pressure

front 245 lb sq in

back 204 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 7 7/8" x 1"

Length as per Rule

2'-10 1/2"

Distance apart

7 1/2"

No. and pitch of stays

in each

3 @ 8 1/2"

Working pressure by Rules

205 lb sq in

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons sq in

Thickness: Sides

1 1/16"

Back

1 1/16"

Top

1 1/16"

Bottom

1 1/16"

Pitch of stays to ditto: Sides

9' x 8 1/2"

Back

9' x 8 1/2"

Top

8 1/2' x 7 1/2"

Are stays fitted with nuts or riveted over

Nuts

Working pressure by Rules

216 lb sq in

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

1"

Lower back plates: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

1"

Pitch of stays at wide water space

14' x 8 1/2"

Are stays fitted with nuts or riveted over

Nuts

Working Pressure

308 lb sq in

Main stays: Material

Steel

Tensile strength

28-32 tons sq in

Diameter

At body of stay, 2 5/8"

No. of threads per inch

6

Area supported by each stay

230 sq in

Working pressure by Rules

215 lb sq in

Screw stays: Material

Steel

Tensile strength

26-30 tons sq in

Diameter

At turned off part, 1 3/4"

No. of threads per inch

9

Area supported by each stay

76 1/2 sq in

Working pressure by Rules **23740** Are the stays drilled at the outer ends **no** Margin stays: Diameter { At turned off part, **1 7/8"** or Over threads **1 7/8"**
No. of threads per inch **9** Area supported by each stay **970"** Working pressure by Rules **21840**
Tubes: Material **Iron** External diameter { Plain **3 1/2"** Stay **3 1/2"** Thickness **1 5/16"** No. of threads per inch **9**
Pitch of tubes **4 1/16" x 4 9/8"** Working pressure by Rules **22440** Manhole compensation: Size of opening in
end plate **16 x 12"** Section of compensating ring **flanged inward** No. of rivets and diameter of rivet holes **✓**
Outer row rivet pitch at ends **✓** 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 **A. S. Marine type** Manufacturers of { Tubes **Weldless Steel Tube Co.** Steel castings **Nottingham Steel Co.**
Number of elements **66** Material of tubes **Solid drawn steel** Internal diameter and thickness of tubes **1 9/16" - 3 3/16"**
Material of headers **Forged steel** Tensile strength **26-30 tons/sq. in.** 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 **1.77 sq. in.** Are the safety valves fitted with easing gear **Yes** Working pressure as per
Rules **20040** Pressure to which the safety valves are adjusted **20540** Hydraulic test pressure:
tubes **157040** castings **66040** and after assembly in place **40040** 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**
FOR AND ON BEHALF OF
DANIEL LAIRD & CO. LIMITED,
The foregoing is a correct description,
J. W. Laird Manufacturer.

Dates { During progress of work in shops -- }
of Survey while building { During erection on board vessel -- }
See Machinery report. Are the approved plans of boiler and superheater forwarded herewith **Yes**
(If not state date of approval.)
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. Upon completion and fitting on board they were examined under steam and found satisfactory.

Survey Fee £ : : When applied for, 19
Travelling Expenses (if any) £ : : When received, 19

J. S. Millon

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **LIVERPOOL 31 JULY 1934**

Assigned **See attached Machinery Report.**



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