

## REPORT ON BOILERS.

No. 97487

Received at London Office

23 AUG 1930

Date of writing Report

19

When handed in at Local Office

21 AUG. 1930

Port of

LIVERPOOL

No. in Survey held at

Birkenhead

Date First Survey

4<sup>th</sup> December 1929

Last Survey

31<sup>st</sup> July

1930

on the

S. S. 'Cloughton'

(Number of Visits)

91

Gross

484

Tons

Net

Master

Built at Birkenhead

By whom built

Cammell Laird &amp; Co.

No. 971

When built 1930

Engines made at

Birkenhead

By whom made

Cammell Laird &amp; Co.

Engine No. 971

When made 1930

Boilers made at

Birkenhead

By whom made

Cammell Laird &amp; Co.

Boiler No. 971

When made 1930

Nominal Horse Power

194

Owners

Municipal Corp. of Birkenhead

Port belonging to

Liverpool

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

Manufacturers of Steel

David Colville &amp; Sons Ltd. Stalyban Early Dudley

(Letter for Record S)

Total Heating Surface of Boilers

3600 sq ft

Is forced draught fitted

No

Coal or Oil fired

Coal

No. and Description of Boilers

Two Cylindrical Direct Tube

Working Pressure

180 lb sq in

Tested by hydraulic pressure to

320 lb sq in

Date of test

17/4/30

No. of Certificate

2355

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

57 sq ft

No. and Description of safety valves to each boiler

Two, spring loaded

Area of each set of valves per boiler

per Rule 11.88 sq in

as fitted 11.88 sq in

Pressure to which they are adjusted

185 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

4'-2"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

Yes

Is the bottom of the boiler insulated

No

Largest internal dia. of boilers

10'-0"

Length

17'-1 7/8"

Shell plates: Material

Steel

Tensile strength

28-32 tons sq in

Thickness

27/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end D.R. lap

inter. D.R. lap

long. seams

Double Riv. Double Butts

Diameter of rivet holes in

circ. seams 15/16"

long. seams 15/16"

Pitch of rivets

2.636" + 3.164"

Percentage of strength of circ. end seams

plate 64.4

rivets 50.9

Percentage of strength of circ. intermediate seam

plate 70.3

rivets 62.6

Percentage of strength of longitudinal joint

plate 85.57

rivets 96.9

combined 90.5

Working pressure of shell by Rules

18 1/2 lb sq in

Thickness of butt straps

outer 1 1/16"

inner 13/16"

No. and Description of Furnaces in each Boiler

Three Corrugated

Material

Steel

Tensile strength

26-30 tons sq in

Smallest outside diameter

3'-2 3/4"

Length of plain part

top

bottom

Thickness of plates

crown 1/2"

bottom 1/2"

Description of longitudinal joint

weld

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

None

Working pressure of furnace by Rules

186 lb sq in

End plates in steam space: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

15/16"

Pitch of stays

15 1/2" x 15"

How are stays secured

Double Nuts &amp; Washers

Working pressure by Rules

199 lb sq in

Tube plates: Material

front Steel

back Steel

Tensile strength

26-30 tons sq in

Thickness

15/16"

Pitch of stays

34/32"

Mean pitch of stay tubes in nests

10 15/16"

Pitch across wide water spaces

14"

Working pressure

front 246 lb sq in

back 225 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 9 x 15/16"

Length as per Rule

3'-4 1/8"

Distance apart

14"

No. and pitch of stays

in each

Two-22 1/2"

Working pressure by Rules

approved

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons sq in

Thickness: Sides

19/32"

Back

29/32"

Top

1 1/16"

Bottom

19/32"

Pitch of stays to ditto: Sides

8' x 8"

Back

15' x 14"

Top

28' x 22 1/2"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

190 lb sq in

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

15/16"

Lower back plate: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

15/16"

Pitch of stays at wide water space

15' x 14"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

200 lb sq in

Main stays: Material

Steel

Tensile strength

28-32 tons sq in

Diameter

At body of stay, or Over threads

2 1/2"

No. of threads per inch

6

Area supported by each stay

232 1/2 sq in

Working pressure by Rules

191 lb sq in

Screw stays: Material

Steel

Tensile strength

26-30 tons sq in

Diameter

At turned off part, or Over threads

1 1/2"

No. of threads per inch

9

Area supported by each stay

64 sq in



Working pressure by Rules *196 lbs* Are the stays drilled at the outer ends *no* Margin stays: Diameter *At turned off part, ✓*  
 No. of threads per inch *✓* Area supported by each stay *✓* Working pressure by Rules *✓*  
 Tubes: Material *Iron* External diameter *Plain 3 1/4" ✓* Thickness *5/16" ✓* No. of threads per inch *9 ✓*  
 Pitch of tubes *4 3/8" x 4 3/8" ✓* Working pressure by Rules *191 lbs ✓* Manhole compensation: Size of open  
 shell plate *21 x 17" ✓* Section of compensating ring *in Weld Standard ✓* No. of rivets and diameter of rivet holes *44 x 15/16" ✓*  
 Outer row rivet pitch at ends *6 7/8" ✓* Depth of flange if manhole flanged *3 1/4" ✓* Steam Dome: Material *✓*  
 Tensile strength *✓* Thickness of shell *✓* Description of longitudinal joint *✓*  
 Diameter of rivet holes *✓* Pitch of rivets *✓* Percentage of strength of joint *Plate ✓*  
 Internal diameter *✓* Working pressure by Rules *✓* Thickness of crown *✓* No. and diame  
 stays *✓* Inner radius of crown *✓* Working pressure by Rules *✓*  
 How connected to shell *✓* Size of doubling plate under dome *✓* Diameter of rivet holes and  
 of rivets in outer row in dome connection to shell *✓*

Type of Superheater *none* Manufacturers of *✓*  
 Number of elements *✓* Material of tubes *✓* Internal diameter and thickness of tubes *✓*  
 Material of headers *✓* Tensile strength *✓* Thickness *✓* Can the superheater be shut off  
 the boiler be worked separately *✓* Is a safety valve fitted to every part of the superheater which can be shut off from the boiler *✓*  
 Area of each safety valve *✓* Are the safety valves fitted with easing gear *✓* Working pressure as  
 Rules *✓* Pressure to which the safety valves are adjusted *✓* Hydraulic test press  
 tubes *✓* castings *✓* and after assembly in place *✓* Are drain cocks or valves f  
 to free the superheater from water where necessary *✓*

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

The foregoing is a correct description,  
 CAMMELL LAIRD AND COMPANY LIMITED,  
*J. W. Laird* Manufactu

Dates of Survey *During progress of work in shops - - -* } Please see Machinery Report  
*while building - - -* } *During erection on board vessel - - -*  
 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval)  
 Total No. of visits

Is this Boiler a duplicate of a previous case *Yes* If so, state Vessel's name and Report No. *S/S Thurelaston & Anderton*

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, and the boilers have been satisfactorily fitted on board and examined under steam.*

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

*J. F. Milton & H. B. Murray*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute LIVERPOOL 22 AUG. 1930

Assigned *See Machinery Rpt.*