

REPORT ON BOILERS.

No. 111306

Received at London Office SEP 7 1938

Date of writing Report

19

When handed in at Local Office

3 SEP 1938

Port of

No. in Survey held at
Reg. Book

Birkenhead

Date First Survey

4/5/37

Last Survey

25/8/1938

(Number of Visits

231)

Gross

Tons

Net

Master

Built at

Birkenhead

By whom built

Cammell Laird & Co. Ltd.

Hull No.

1032

When built

1938

Engines made at

Birkenhead

By whom made

Cammell Laird & Co. Ltd.

Engine No.

1032

When made

1938

Boilers made at

Birkenhead

By whom made

Cammell Laird & Co. Ltd.

Boiler No.

1032

When made

1938

Nominal Horse Power

1867

Owners

The Ellerman Lines Ltd.

Port belonging to

Liverpool

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Colville Ltd

Stay bars Seton Iron Works

Letter for Record

S

Total Heating Surface of Boilers

19800 sq ft

Is forced draught fitted

Yes

Coal or Oil fired

Either

No. and Description of Boilers

6 Multitubular Cylindrical Single ended

Working Pressure

268 lb sq in

Tested by hydraulic pressure to

448 lb sq in

Date of test

16/12/37, 20/12/37, 23/12/37, 13/1/38, 9/2/38, 15/2/38

No. of Certificate

2482/3/4/5, 2457/5

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

69 sq ft

No. and Description of safety valves to each boiler

Two spring loaded—improved high lift

Area of each set of valves per boiler

per Rule

6.94 sq ft

as fitted

7.95 sq ft

Pressure to which they are adjusted

270 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

14"

Is oil fuel carried in the double bottom under boilers

Yes

Smallest distance between shell of boiler and tank top plating

2'-0"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

17'-0"

Length

12'-6"

Shell plates

Material

Steel

Tensile strength

34-38 tons sq in

Thickness

1 23/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end

DR lap

long. seams

Double R. Double butt

Diameter of rivet holes

circ. seams

1 13/16"

long. seams

Pitch of rivets

4.25"

1 11/4"

Percentage of strength of circ. end seams

plate

57

rivets

4783.8

Percentage of strength of circ. intermediate seam

plate

57

rivets

4783.8

Percentage of strength of longitudinal joint

rivets

84.6

combined

84.5

Working pressure of shell by Rules

268 lb sq in

Thickness of butt straps

outer

1 11/32"

inner

1 15/32"

No. and Description of Furnaces in each Boiler

4 Corrugated

Material

steel

Tensile strength

26-30 tons sq in

Smallest outside diameter

3'-7"

Length of plain part

top

bottom

Thickness of plates

crown

25/32"

bottom

Description of longitudinal joint

weld

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

none

Working pressure of furnace by Rules

268 lb sq in

End plates in steam space

Material

steel

Tensile strength

26-30 tons sq in

Thickness

1 13/32"

Pitch of stays

20 3/4" x 16 1/8"

How are stays secured

Double nuts & small washers

Working pressure by Rules

268 lb sq in

Tube plates: Material

front

steel

back

steel

Tensile strength

26-30 tons sq in

Thickness

1 1/8"

Mean pitch of stay tubes in nests

10'-6.25"

Pitch across wide water spaces

13 3/4"

Working pressure

front

302 lb sq in

back

293 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 3/4" x 27 1/2"

Length as per Rule

3'-0 1/32"

Distance apart

8 1/2"

No. and pitch of stays

in each

3 @ 8 1/2"

Working pressure by Rules

273 lb sq in

Combustion chamber plates: Material

steel

Tensile strength

26-30 tons sq in

Thickness: Sides

3/4"

Back

13/16"

Top

3/4"

Bottom

1"

Pitch of stays to ditto: Sides

9 1/8" x 7 1/4"

Back

8 1/2" x 7 1/8" riveted stay

Top

8 1/2" x 8 1/2" riveted

Are stays fitted with nuts or riveted over

part riveted

part riveted

part riveted

part riveted

part riveted

part riveted

part riveted

part riveted

Working pressure by Rules

274 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

1 1/32"

Pitch of stays at wide water space

14 1/2" x 9 1/4"

Are stays fitted with nuts or riveted over

riveted

Working Pressure

298 lb sq in

Main stays: Material

steel

Tensile strength

28-32 tons sq in

Diameter

At body of stay,

3 1/2"

or

Over threads

No. of threads per inch

6

Area supported by each stay

334.5 sq in

Working pressure by Rules

278 lb sq in

Screw stays: Material

steel

Tensile strength

26-30 tons sq in

Diameter

At turned off part,

1 7/8"

or

Over threads

No. of threads per inch

9

Area supported by each stay

54 sq in

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Working pressure by Rules *280 lb* Are the stays drilled at the outer ends *No* Margin stays: Diameter { At turned off part, *1 7/8"* or Over threads
No. of threads per inch *9* Area supported by each stay *79 sq"* Working pressure by Rules *270 lb*
Tubes: Material *B.B. Iron* External diameter { Plain *3"* Thickness { *7 W.G.* 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 1/2" x 18 1/2"* Section of compensating ring *12 3/4" x 1 3/4"* No. of rivets and diameter of rivet holes *36 @ 1 3/16"*
Outer row rivet pitch at ends *11 3/4"* Depth of flange if manhole flanged *3 1/2"* 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 *✓* 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 *Smoke box type* Manufacturers of { Tubes *supplied by L.E. Manufacturing Co* Steel castings
Number of elements *72 Each boiler* Material of tubes *Solid drawn steel* Internal diameter and thickness of tubes *15 3/4" x 2 1/2"*
Material of headers *Mild steel* Tensile strength *✓* Thickness *7/8"* 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 *3.14 sq"* Are the safety valves fitted with easing gear *Yes* Working pressure as per Rules *265 lb* Pressure to which the safety valves are adjusted *270 lb* Hydraulic test pressure: tubes *✓* castings *✓* and after assembly in place *300 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 & CO. LIMITED
SECRETARY

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

Is this Boiler a duplicate of a previous case *Yes* If so, state Vessel's name and Report No. *City of Pretoria Lw 110016*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been constructed under special Survey & are in accordance with the Rules and the approved plan. The workmanship is good throughout. They have been satisfactorily fitted on board and examined under steam.*

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

J. J. Milton
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *LIVERPOOL - 6 SEP 1938*
Assigned *See Liv. 76, 111506*

