

REPORT ON BOILERS.

No. 98307

Received at London Office 18 FEB 1931

Date of writing Report

19

When handed in at Local Office

16 FEB 1931

Port of

LIVERPOOL

No. in
Reg. Book.

Survey held at

Birkenhead

Date, First Survey

11/6/30

Last Survey

4/2/1931

(Number of Visits

67)

Gross

1045

Net

Master

Built at

Birkenhead

By whom built

Cammell Laird & Co Ltd

Yard No.

978

When built

1931

Engines made at

Birkenhead

By whom made

Cammell Laird & Co Ltd

Engine No.

978

When made

1931

Boilers made at

Birkenhead

By whom made

Cammell Laird & Co Ltd

Boiler No.

978

When made

1931

Nominal Horse Power

352

Owners

London Midland & Scottish Rail

belonging to

Goole

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

Manufacturers of Steel

David Colville & Sons Ltd

(Letter for Record

S. 1)

Total Heating Surface of Boilers

5220 sq ft

Is forced draught fitted

Yes

Coal or Oil fired

Coal

No. and Description of Boilers

Two Cylindrical Multitubular

Working Pressure

200 lb sq in

Tested by hydraulic pressure to

350 lb sq in

Date of test

13.10.30

No. of Certificate

2372

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

62 1/2 sq ft

No. and Description of safety valves to each boiler

Two spring loaded

Area of each set of valves per boiler

per Rule 7.58 (high lift)
as fitted 7.95 sq ft

Pressure to which they are adjusted

205 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

5'-4"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

"

Is the bottom of the boiler insulated

No

Largest internal dia. of boilers

15'-0"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength

28-32 tons sq in

Thickness

1 3/8"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end double R. lap

long. seams

Buttle R. Double butts

Diameter of rivet holes in

circ. seams

1 7/16"

Pitch of rivets

3.85"

Percentage of strength of circ. end seams

plate 62.6
rivets 50.3

Percentage of strength of circ. intermediate seam

plate 85
rivets 89

Percentage of strength of longitudinal joint

plate 85
rivets 94.4
combined 89

Working pressure of shell by Rules

202 1/2 lb sq in

Thickness of butt straps

outer 1 1/16"
inner 1 3/16"

No. and Description of Furnaces in each Boiler

Three Corrugated

Material

Steel

Tensile strength

26-30 tons sq in

Smallest outside diameter

3'-8 3/4"

Length of plain part

top ✓
bottom "

Thickness of plates

crown 5/8"
bottom "

Description of longitudinal joint

Weld

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

None

Working pressure of furnace by Rules

204 1/2 lb sq in

End plates in steam space: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

1 9/32"

Pitch of stays

20 1/2 x 2 1/2"

How are stays secured

Buttle nuts and plain washers

Working pressure by Rules

204 1/2 lb sq in

Tube plates: Material

front Steel
back Steel

Tensile strength

26-30 tons sq in

Thickness

3 1/32"

Mean pitch of stay tubes in nests

9 1/16"

Pitch across wide water spaces

13 1/2"

Working pressure

front 276 1/2 lb sq in
back 290 1/2 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 8 7/8 x 1"

Length as per Rule

2'-9"

Distance apart

10 1/4"

No. and pitch of stays

in each

3 @ 7 7/8"

Working pressure by Rules

206 1/2 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

7/8"

Pitch of stays to ditto: Sides

9 1/2 x 8 1/4"

Back

9 3/4 x 7 3/4"

Top

10 1/4 x 7 7/8"

Are stays fitted with nuts or riveted over

Buttle

Working pressure by Rules

202 1/2 lb sq in

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

3 1/32"

Lower back plate: Material

Steel

Tensile strength

26-30 tons sq in

Thickness

7/8"

Pitch of stays at wide water space

14 3/4 x 7 3/4"

Are stays fitted with nuts or riveted over

Buttle

Working Pressure

225 1/2 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

430 sq in

Working pressure by Rules

203 1/2 lb sq in

Screw stays: Material

Steel

Tensile strength

26-30 tons sq in

Diameter

At body of part, 1 5/8" back stay
Over threads 1 3/4" side & top

No. of threads per inch

9

Area supported by each stay

75.5 sq in

Working pressure by Rules *2034 lb* Are the stays drilled at the outer ends *ho* Margin stays: Diameter *1 7/8"*
No. of threads per inch *9* Area supported by each stay *95 sq* Working pressure by Rules *224 lb*
Tubes: Material *B.B. Iron* External diameter *2 1/2"* Thickness *5/16"* No. of threads per inch *9*
Pitch of tubes *3 7/8" x 3 7/8"* Working pressure by Rules *243 lb* Manhole compensation: Size of opening in
shell plate *17 1/2" x 21 1/2"* Section of compensating ring *11" x 1 7/16"* No. of rivets and diameter of rivet holes *44 @ 1 7/16"*
Outer row rivet pitch at ends *9 7/8"* Depth of flange if manhole flanged *3 1/4"* 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 ☒
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 *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 and
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 casing gear ☒ Working pressure as per
Rules ☒ Pressure to which the safety valves are adjusted ☒ Hydraulic test pressure:
tubes ☒ castings ☒ and after assembly in place ☒ Are drain cocks or valves fitted
to free the superheater from water where necessary ☒

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

The foregoing is a correct description,
JAMMELL LAIRD AND COMPANY LIMITED.
J. W. Laird Manufacturer.

Dates of Survey ☒ During progress of work in shops -- *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) *Yes*

Total No. of visits

Is this Boiler a duplicate of a previous case *Yes* If so, state Vessel's name and Report No. *Y Calder (Lic 197993)*

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. 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. S. Melton

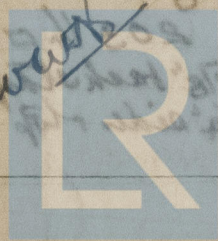
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

LIVERPOOL 17 FEB. 1931

Assigned

See Machy rpt.



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Foundation