

# REPORT ON BOILERS.

No. 94000.

Received at London Office

11 JUL 1928

Date of writing Report July 6<sup>th</sup> 1928 When handed in at Local Office 12 JULY 1928 Port of LIVERPOOL

No. in Surrey held at Birkenhead Date, First Survey Sept 16<sup>th</sup> /27 Last Survey July 2<sup>nd</sup> 1928

1035 on the S.S. 'Tactician' (Number of Visits 101) Tons {Gross 5887 Net 3683}

Master Birkenhead Built at Birkenhead By whom built Cammell Laird & Co. Ltd Yard No. 935 When built 1928

Engines made at Birkenhead By whom made Cammell Laird & Co. Ltd Engine No. 935 When made 1928

Boilers made at D<sup>o</sup> By whom made Cammell Laird & Co. Ltd Boiler No. 935 When made 1928

Nominal Horse Power 524 Owners Charente S.S. Co. Ltd Port belonging to Liverpool

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

Manufacturers of Steel David Colville & Sons Ltd (Letter for Record 2(T))

Total Heating Surface of Boilers 8208 sq ft Is forced draught fitted no Coal or Oil fired Coal

Description of Boilers Two double ended multitubular return tube Working Pressure 210 lb sq in

Tested by hydraulic pressure to 365 lb sq in Date of test 29.3.28 No. of Certificate 2307 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 215 sq ft No. and Description of safety valves to each boiler Two spring loaded

Area of each set of valves per boiler {per Rule 21.10 as fitted 25.12} Pressure to which they are adjusted 210 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 1/2" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 3'-3" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 15'-8 5/16" Length 17'-8" Shell plates: Material Steel Tensile strength 28-32 tons sq in

Thickness 1 5/32" end plates Are the shell plates welded or flanged no Description of riveting: circ. seams {end DR lap inter. 2 R. lap

Long. seams Hel. Riv. & Butts Diameter of rivet holes in {circ. seams 1 1/2" long. seams 1 1/2"} Pitch of rivets {circ. 4'-4 8/8" end. 4'-2 1/3" center long. 10 7/16"}

Percentage of strength of circ. end seams {plate 63.87 rivets 47.77} Percentage of strength of circ. intermediate seam {plate 64.42 rivets 68.97}

Percentage of strength of longitudinal joint {plate 88.77 rivets 86.77 combined 86.77} Working pressure of shell by Rules 211 lb sq in

Thickness of butt straps {outer 1 1/8" inner 1 1/4"} No. and Description of Furnaces in each Boiler Six-Mission Corrugated

Material Steel Tensile strength 26-30 tons sq in Smallest outside diameter 3'-8 9/32"

Length of plain part {top 4 1/2" bottom 6 1/4"} Thickness of plates {crown 4 1/2" bottom 6 1/4"} Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 212 lb sq in

End plates in steam space: Material Steel Tensile strength 26-30 tons sq in Thickness 1 5/32" Pitch of stays 22" x 2 1/4"

How are stays secured Double nuts & washers Working pressure by Rules 212 lb sq in

End plates: Material {front Steel back Steel} Tensile strength {front 26-30 tons sq in back 26-30 tons sq in} Thickness {front 1" back 1 1/32"}

Span pitch of stay tubes in nests 12-18" Pitch across wide water spaces 14 1/2" Working pressure {front 221 lb sq in back 262 lb sq in}

Stays to combustion chamber tops: Material Steel Tensile strength 28-32 tons sq in Depth and thickness of girder

Centre Two plates 12 1/8" x 7 1/8" Length as per Rule 3'-9 15/16" Distance apart 9 1/4" No. and pitch of stays

Each Four at 9" Working pressure by Rules 215 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 23/32"

Pitch of stays to ditto: Sides 9 x 9 1/4" Back 9 x 9 1/4" Top 9 x 9 1/4" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 218 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 1"

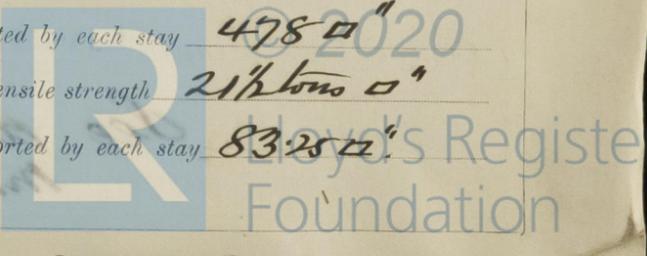
Pitch of stays at wide water space 14 1/2" x 9 3/4" Are stays fitted with nuts or riveted over nuts

Working Pressure 221 lb sq in Main stays: Material Steel Tensile strength 28-32 tons sq in

At body of stay, or Over threads 3 1/2" x 3 1/4" No. of threads per inch 6 Area supported by each stay 478 sq in

Working pressure by Rules 225 lb sq in Screw stays: Material Iron Tensile strength 21 1/2 tons sq in

At turned off part, or Over threads 1 3/4" No. of threads per inch 9 Area supported by each stay 83.25 sq in



Working pressure by Rules  $218\text{ lb}/\text{sq. in.}$  Are the stays drilled at the outer ends *No* Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \checkmark$

No. of threads per inch  $\checkmark$  Area supported by each stay  $\checkmark$  Working pressure by Rules  $\checkmark$

Tubes: Material *BB Iron* External diameter  $\left\{ \begin{array}{l} \text{Plain } 3\frac{1}{2}'' \\ \text{Stay } 3\frac{1}{2}'' \end{array} \right. \checkmark$  Thickness  $\left\{ \begin{array}{l} \text{Stay } 3\frac{1}{8}'' \\ \text{Stay } 3\frac{1}{8}'' \end{array} \right. \checkmark$  No. of threads per inch  $9 \checkmark$

Pitch of tubes  $4\frac{7}{8} \times 4\frac{3}{4}''$  Working pressure by Rules  $240\text{ lb}/\text{sq. in.}$  Manhole compensation: Size of opening  $\checkmark$

shell plate  $18 \times 2\frac{1}{2}''$  Section of compensating ring  $12 \times 1\frac{1}{2}''$  (flanged) No. of rivets and diameter of rivet holes  $40 - 1\frac{1}{2}''$  dia  $\checkmark$

Outer row rivet pitch at ends  $10\frac{5}{8}''$  Depth of flange if manhole flanged  $3\frac{1}{4}''$  Steam Dome: Material  $\checkmark$

Tensile strength  $\checkmark$  Thickness of shell  $\checkmark$  Description of longitudinal joint  $\checkmark$

Diameter of rivet holes  $\checkmark$  Pitch of rivets  $\checkmark$  Percentage of strength of joint  $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \checkmark$

Internal diameter  $\checkmark$  Working pressure by Rules  $\checkmark$  Thickness of crown  $\checkmark$  No. and diameter  $\checkmark$

stays  $\checkmark$  Inner radius of crown  $\checkmark$  Working pressure by Rules  $\checkmark$

How connected to shell  $\checkmark$  Size of doubling plate under dome  $\checkmark$  Diameter of rivet holes and pitch  $\checkmark$

of rivets in outer row in dome connection to shell  $\checkmark$

Type of Superheater *Superheater Co RR type* Manufacturers of Tubes  $\left. \begin{array}{l} \text{Supplied from Manufacturer} \\ \text{Steel castings} \end{array} \right\} \checkmark$

Number of elements *64 ferrules* Material of tubes *steel solid drawn* Internal diameter and thickness of tubes  $17\frac{1}{2}'' - 3\frac{3}{4}''$  thick  $\checkmark$

Material of headers *Cast steel* Tensile strength  $26-35\text{ tons}/\text{sq. in.}$  Thickness  $\checkmark$  Can the superheater be shut off  $\checkmark$

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  $1.76\text{ sq. ft.}$  Are the safety valves fitted with easing gear *Yes* Working pressure as  $\checkmark$

Rules  $\checkmark$  Pressure to which the safety valves are adjusted  $215\text{ lb}/\text{sq. in.}$  Hydraulic test press  $\checkmark$

tubes  $1000\text{ lb}/\text{sq. in.}$  castings  $6300\text{ lb}/\text{sq. in.}$  and after assembly in place  $4200\text{ lb}/\text{sq. in.}$  Are drain cocks or valves  $\checkmark$

to free the superheater from water where necessary *Yes*

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with  $\checkmark$

**CAMMELL LAIRD AND COMPANY LIMITED,**  
The foregoing is a correct description,  
*W.A. McInerney* Manufact  $\checkmark$   
ENGINEERING MANAGER

Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops - -} \end{array} \right. \checkmark$  Are the approved plans of boiler and superheater forwarded herewith *Yes*  
(If not state date of approval.)

while building  $\left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel - - -} \end{array} \right. \checkmark$  *See McInerney report* Total No. of visits  $101$

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.)

*These boilers have been constructed under special survey, and the material & workmanship are good. They have been satisfactorily fitted on board, examined under steam & their safety valves adjusted.*

Survey Fee ... £ : : When applied for, 192

Travelling Expenses (if any) £ : : When received, 192

*J.D. Milton & W.S. Shields*  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **LIVERPOOL 13 JULY 1928**

Assigned *See accompanying machinery survey.*

