

REPORT ON BOILERS.

No. 109742.

Received at London Office

OCT 27 1937.

Date of writing Report

19

When handed in at Local Office

19/10/37 Port of

No. in Survey held at

Birkenhead

Date, First Survey

17/7/36

Last Survey

15/10/1937

Reg. Book.

on the *Iron S.S. City of Capetown*

(Number of Visits 189)

Gross 8046

Net 3935

Master

Birkenhead

By whom built *Cammell Laird & Co Ltd*

Yard No. 1023

When built 1937

Engines made at

Birkenhead

By whom made *Cammell Laird & Co Ltd*

Engine No. 1023

When made 1937

Boilers made at

Birkenhead

By whom made *Cammell Laird & Co Ltd*

Boiler No. 1023

When made 1937

Nominal Horse Power.

Owners

Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel *Steel Co. of Scotland Scottish Iron & Steel Co* (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 *25.2.37* No. of Certificate *2468* Can each boiler be worked separately *Yes*

Area of Firegrate in each Boiler *690 sq ft* No. and Description of safety valves to each boiler *Two spring loaded high lift*

Area of each set of valves per boiler *6.94 sq in* Pressure to which they are adjusted *268 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 in* Is oil fuel carried in the double bottom under boilers *Yes*

Smallest distance between shell of boiler and tank top plating *2'0 in* Is the bottom of the boiler insulated *Yes*

Largest internal dia. of boilers *17'0 in* Length *12'6 in* Shell plates: Material *Steel* Tensile strength *34-38 tons sq in*

Thickness *1 23/32 in* Are the shell plates welded or flanged *No* Description of riveting: circ. seams *and D.R. lap*

long. seams *Rebber. double butts* Diameter of rivet holes in *circ. seams 1 13/16 in* Pitch of rivets *4'25 in*

Percentage of strength of circ. end seams *plate 57 rivets 47* Percentage of strength of circ. intermediate seam *plate rivets*

Percentage of strength of longitudinal joint *plate 83.8 rivets 84.6 combined 84.5* Working pressure of shell by Rules *269 lb sq in*

Thickness of butt straps *outer 1 1/32 in inner 1 15/32 in* No. and Description of Furnaces in each Boiler *4 Corrugated*

Material *Steel* Tensile strength *26-30 tons sq in* Smallest outside diameter *3'7 in*

Length of plain part *top bottom* Thickness of plates *crowns 29/32 in* 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 in* Pitch of stays *20 3/4 x 16 1/8 in*

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 in*

Mean pitch of stay tubes in nests *10'6 25 in* Pitch across wide water spaces *13 3/4 in* 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 *10 3/4 x 2 plates 27/32 in* Length as per Rule *3'0 1/2 in* Distance apart *8 1/2 in* No. and pitch of stays

in each *3 08 1/2 in* Working pressure by Rules *273 lb sq in* Combustion chamber plates: Material *Steel*

Tensile strength *26-30 tons sq in* Thickness: Sides *3/4 in* Back *13/16 in* Top *3/4 in* Bottom *1 in*

Pitch of stays to ditto: Sides *9 1/8 x 7 3/4 in* Back *8 1/2 x 7 9/8 in* Top *8 1/2 x 8 1/2 in* Are stays fitted with nuts or riveted over *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 7/8 in* Lower back plate: Material *Steel* Tensile strength *26-30 tons sq in* Thickness *1 1/2 in*

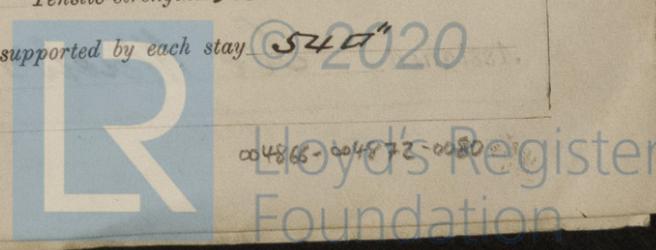
Pitch of stays at wide water space *14 1/2 x 9 1/4 in* Are stays fitted with nuts or riveted over *riveted.*

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 in* 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 5/8 in* No. of threads per inch *9* Area supported by each stay *54 sq in*



Working pressure by Rules $280\frac{1}{2}$ Are the stays drilled at the outer ends *no* Margin stays: Diameter { At turned off part, $1\frac{7}{8}$ " or Over threads. $1\frac{7}{8}$ "
 No. of threads per inch 9 Area supported by each stay $79\frac{1}{2}$ " Working pressure by Rules $270\frac{1}{2}$ "
 Tubes: Material *B.B. Iron* External diameter { Plain $3\frac{1}{2}$ " Stay $3\frac{1}{2}$ " Thickness { $1\frac{1}{8}$ " $3/8$ " No. of threads per inch 9
 Pitch of tubes $4\frac{1}{4} \times 4\frac{1}{4}$ " Working pressure by Rules $276\frac{1}{2}$ " Manhole compensation: Size of opening in shell plate $22\frac{1}{2} \times 18\frac{1}{2}$ " Section of compensating ring $12\frac{3}{4} \times 1\frac{3}{4}$ " No. of rivets and diameter of rivet holes $36 \text{ @ } 1\frac{3}{16}$ "
 Outer row rivet pitch at ends $11\frac{3}{4}$ " Depth of flange if manhole flanged $3\frac{1}{2}$ " 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
 How connected to shell Inner radius of crown Working pressure by Rules
 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 tube type* Manufacturers of Tubes *Supplied by H.E. Mannie Eng. Co.*
 Number of elements 72 each body Material of tubes *solid drawn steel* Steel forgings
 Material of headers *Mild steel* Tensile strength Steel castings
 Internal diameter and thickness of tubes $15\frac{1}{4} \times 2\frac{1}{2}$ "
 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 " Are the safety valves fitted with easing gear *Yes* Working pressure as per Rules $265\frac{1}{2}$ "
 Pressure to which the safety valves are adjusted $268\frac{1}{2}$ " Hydraulic test pressure: tubes forgings and castings and after assembly in place $53\frac{1}{2}$ "
 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,
 CAMMELL & CO. LIMITED
 Manufacturer.

Dates of Survey { During progress of work in shops -- } *See Machinery 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 *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. 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. O. Millon.
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **LIVERPOOL 26 OCT 1937**

Assigned *See Mach^y rpt.* *W.R.P.*