

# REPORT ON BOILERS.

Received at London Office. 31 AUG 1944

Date of writing Report 12 JULY 1944 When handed in at Local Office 19 JULY 1944 Port of MOBILE, ALABAMA

No. in Survey held at MOBILE, ALABAMA Date, First Survey 24 MARCH 1944 Last Survey 19 MAY 1944

Book. 1087 on the T.S.S. "EL LIBERTADOR" (Number of Visits 5) Tons { Gross 1.713 Net 750

Built at DANZIG By whom built DANZIGERWERFT Yard No. 5.59 When built 1929

Engines made at DANZIG By whom made DANZIGERWERFT Engine No. 370/371 When made 1929

Boilers made at DANZIG By whom made DANZIGERWERFT Boiler No. 586/687 When made 1929

Indicated Horse Power 306 Owners KONINKL. NEDERL. STOOMB. MAATS. N.V. Port belonging to AMSTERDAM (ROYAL NETHERLANDS. S. S. CO)

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

Manufacturers of Steel (Letter for Record S)

Total Heating Surface of Boilers 466.8 m<sup>2</sup> for coal, 508.6 m<sup>2</sup> for oil Is forced draught fitted yes Coal or Oil fired Oil

Material and Description of Boilers 2. S. B., 6 c. f. Working Pressure 14 kg/cm<sup>2</sup>

Tested by hydraulic pressure to 17.5 kg/cm<sup>2</sup> Date of test 19 Apr. 1944 No. of Certificate — Can each boiler be worked separately yes

Area of Firegrate in each Boiler approx 7.5 m<sup>2</sup> when installed No. and Description of safety valves to each boiler 2, each 83 diam.

Area of each set of valves per boiler { per Rule - 14.50" as fitted 10820 cm<sup>2</sup> Pressure to which they are adjusted 14 kg/cm<sup>2</sup> Are they fitted with easing gear yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler no donkey boiler

Smallest distance between boilers or uptakes and bunkers or woodwork 375 Is oil fuel carried in the double bottom under boilers yes

Smallest distance between shell of boiler and tank top plating 375 Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 4250 Length 3801 Shell plates: Material S.M. mild steel Tensile strength 47-54 kg/mm<sup>2</sup>

Thickness 31 Are the shell plates welded or flanged both Description of riveting: circ. seams { end zigzag inner

g. seams double butt strap Diameter of rivet holes in { circ. seams 36 Pitch of rivets { 113, 15, Dist. betw rows 61 long. seams 35 2 inner rows 112, D6 rows 62 OUTER rows 224 - 86

Percentage of strength of circ. end seams { plate - 69 rivets - 45 Percentage of strength of circ. intermediate seam { plate - rivets -

Percentage of strength of longitudinal joint { plate - 84.4 rivets - 107 combined - 90 Working pressure of shell by Rules - 203 lb

Thickness of butt straps { outer 28 inner 31 No. and Description of Furnaces in each Boiler 3 - "BROWN"

Material S.M. mild steel Tensile strength 41-47 kg/mm<sup>2</sup> Smallest outside diameter 1028

Length of plain part { top 235 Thickness of plates { crown 14 Description of longitudinal joint none bottom 435 bottom 14

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules - 204 lb

Stays in steam space: Material S.M. mild steel Tensile strength 41-47 kg/mm<sup>2</sup> Thickness 27 Pitch of stays - horiz. Centre - 420 Side - 400 vertically - 380

How are stays secured screwed in w. nuts and washers, inside and outside Working pressure by Rules - 210 lb

End plates: Material { front S.M. mild steel Tensile strength { 41-47 kg/mm<sup>2</sup> Thickness { 27 back " " " " " " 22

Span pitch of stay tubes in nests 92 Pitch across wide water spaces 92 Working Pressure { front - 230 lb back - 228 lb

Orders to combustion chamber tops: Material S.M. mild steel Tensile strength 41-47 kg/mm<sup>2</sup> Depth and thickness of girder

Centre 210 x 18 Length as per Rule - 760 Distance apart 200 No. and pitch of stays

each 3 - 180 Working pressure by Rules - 212 lb Combustion chamber plates: Material S.M. mild steel

Tensile strength 41-47 kg/mm<sup>2</sup> Thickness: Sides 16 Back 16 Top 16 Bottom 26

Pitch of stays to ditto: Sides horiz. 180, vert. 200 Back horiz. 180, vert. 200 Top long 180, trans 200 Are stays fitted with nuts or riveted over Sides and Back thread w. nuts and washers - Top. Thread a head, screwed in from below

Working pressure by Rules - 225 lb Front plate at bottom: Material S.M. mild steel Tensile strength 41-47 kg/mm<sup>2</sup>

Thickness 27 Lower back plate: Material S.M. mild steel Tensile strength 41-47 kg/mm<sup>2</sup> Thickness 22

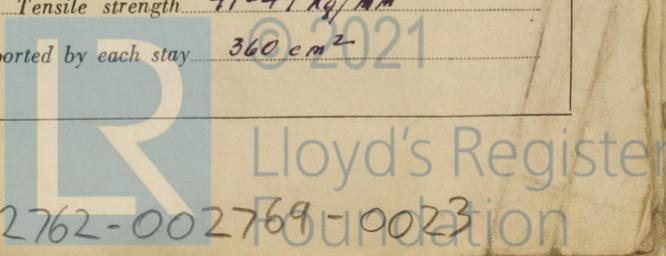
Pitch of stays at wide water space Top row 420, below furnaces 450, 450, 600 Are stays fitted with nuts or riveted over nuts and washers

Working pressure - 265 lb Main stays: Material S.M. mild steel Tensile strength 41-47 kg/mm<sup>2</sup>

Diameter { At body of stay top-bottom 60, rest 70 No. of threads per inch 6 Area supported by each stay 1320 to 1596 cm<sup>2</sup> Overheads front 66.27/61.88, back 68.73/53.94

Working pressure by Rules 230 lb Screw stays: Material S.M. mild steel Tensile strength 41-47 kg/mm<sup>2</sup>

Diameter { At threaded part, 35 No. of threads per inch 7 Area supported by each stay 360 cm<sup>2</sup> Overheads 39.68/36.49



Working pressure by Rules... **2374** Are the stays drilled at the outer ends *no* Margin stays: Diameter { At turned off part, **41 mm** or Over threads **44.**

No. of threads per inch **9** Area supported by each stay **540"** Working pressure by Rules **330 lbs**

Tubes: Material **STEEL** External diameter { Plain **63.5** Thickness { **4** No. of threads per inch **9** Stay **63.5** } **4.5 - 7**

Pitch of tubes **92** Working pressure by Rules **300 lbs** Manhole compensation: Size of opening shell plate **300/400** Section of compensating ring/flanged plate **760/860** No. of rivets and diameter of rivet holes **36** **35 diam**

Out pitch at ends **200** Depth of flange if manhole flanged **100** 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 — 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 { Tubes — Steel forgings — Steel castings — } Internal diameter and thickness of tubes

Number of elements — Material of tubes — Thickness — Can the superheater be shut off at 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 per Rules — Pressure to which the safety valves are adjusted — Hydraulic test pressure tubes — forgings and castings — and after assembly in place — Are drain cocks 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 —

The foregoing is a correct description,

Manufacture

Dates of Survey { During progress of work in shops - - } 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 **NO** If so, state Vessel's name and Report No. —

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

The boilers of this vessel were originally built under Special Survey to the Rules of the "GERMANISCHER LLOYD" and maintained under such Rule until outbreak of present hostilities, but since then under "LLOYD'S REGISTER OF SHIPPING'S" year to year examination.

All dimensions and other information shown in this Report are taken from original drawings found on board the vessel - dimensions have been checked to such extent as possible during present overhaul of the boilers and found to correspond with those on the drawings.

All measurements are "METRIC".

All workmanship, as far as seen, appears to be very good throughout and the boilers are in a very well kept up condition.

Two copies of plan of main boiler attached.

The boilers have been completely examined internally and externally, overhauled (all plain tubes renewed) and tested hydrostatically to 250 lbs. during March and April 1944 at this Port. They are now in good working condition and eligible in my opinion to be classed and included in the LMC 4,44 notation mentioned in Report 4 of even date.

Survey Fee ... : : } When applied for 19  
Travelling Expenses (if any) - : ✓ : } When received 19

*E. J. Weyland*  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **NEW YORK AUG 9 1944**

Assigned *See attached Report.*



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