

REPORT ON BOILERS.

No. 10953

Received at London Office 2 NOV 1926

Date of writing Report 29th Oct. 1926 When handed in at Local Office 31st Oct. 1926 Port of Gothenburg

No. in Survey held at Gothenburg Date, First Survey ✓ Last Survey ✓ 19 19

343 on the "FRATERNITAS" (Number of Visits ✓) Tons { Gross 8179 Net 5066

Builder Belfast By whom built Harland & Wolff Yard No. ✓ When built 1905

Engines made at Belfast By whom made Harland & Wolff Engine No. ✓ When made 1905

Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓

Indicated Horse Power 658 Owners Fraternitaskompagniet Port belonging to Copenhagen

3 Hartman Boilers (Old onboard.)

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel ✓ (Letter for Record ✓)

Total Heating Surface of Boilers ✓ Is forced draught fitted ✓ Coal or Oil fired ✓

No. and Description of Boilers ✓ Working Pressure 60 lbs/sq. in.

Tested by hydraulic pressure to ✓ Date of test ✓ No. of Certificate ✓ Can each boiler be worked separately Yes

Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler 1 spring loaded

Area of each set of valves per boiler { per Rule ✓ as fitted 50 sq. ft. Pressure to which they are adjusted 43 lbs/sq. in. Are they fitted with easing gear No

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 ✓ Is oil fuel carried in the double bottom under boilers ✓

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

Largest internal dia. of boilers 1600 mm Length 5300 mm Shell plates: Material L. S. Steel Tensile strength 41 kg/cm²

Thickness 10 mm Are the shell plates welded or flanged No Description of riveting: circ. seams { end Overlap Single butt strap inter Single butt strap

Long. seams Overlap SR Diameter of rivet holes in { circ. seams 20 mm long. seams 20 mm Pitch of rivets { 53 = 62 mm 57.6 mm

Percentage of strength of circ. end seams { plate 67% rivets 42% Percentage of strength of circ. intermediate seam { plate 62% rivets 48.5%

Percentage of strength of longitudinal joint { plate 65.5% rivets 81.6% combined ✓ Working pressure of shell by Rules 105 lbs/sq. in.

Thickness of butt straps { outer 10 mm inner ✓ No. and Description of Furnaces in each Boiler ✓

Material ✓ Tensile strength ✓ Smallest outside diameter ✓

Length of plain part { top ✓ bottom ✓ Thickness of plates { crown ✓ bottom ✓ Description of longitudinal joint ✓

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules ✓

Stays and plates in steam space: Material one steel plate Tensile strength 41 kg/cm² Thickness 10-20 mm Pitch of stays ✓

How are stays secured ✓ Working pressure by Rules ✓

Front and back plates: Material { front ✓ back ✓ Tensile strength { ✓ Thickness { ✓

Span pitch of stay tubes in nests ✓ Pitch across wide water spaces ✓ Working pressure { front ✓ back ✓

Stays to combustion chamber tops: Material ✓ Tensile strength ✓ Depth and thickness of girder ✓

Centre ✓ Length as per Rule ✓ Distance apart ✓ No. and pitch of stays ✓

Working pressure by Rules ✓ Combustion chamber plates: Material ✓

Tensile strength ✓ Thickness: Sides ✓ Back ✓ Top ✓ Bottom ✓

Pitch of stays to ditto: Sides ✓ Back ✓ Top ✓ Are stays fitted with nuts or riveted over ✓

Working pressure by Rules ✓ Front plate at bottom: Material ✓ Tensile strength ✓

Thickness ✓ Lower back plate: Material ✓ Tensile strength ✓ Thickness ✓

Pitch of stays at wide water space ✓ Are stays fitted with nuts or riveted over ✓

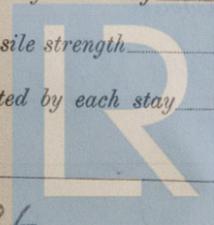
Working Pressure ✓ Main stays: Material ✓ Tensile strength ✓

Diameter { At body of stay, ✓ or ✓ Over threads ✓ No. of threads per inch ✓ Area supported by each stay ✓

Working pressure by Rules ✓ Screw stays: Material ✓ Tensile strength ✓

Diameter { At turned off part, ✓ or ✓ Over threads ✓ No. of threads per inch ✓ Area supported by each stay ✓

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Working pressure by Rules Are the stays drilled at the outer ends Margin stays: Diameter At turned off part, or Over threads.

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

Tubes: Material External diameter Plain Stay Thickness No. of threads per inch

Pitch of tubes Working pressure by Rules **Manhole compensation:** Size of opening in shell plate Section of compensating ring No. of rivets and diameter of rivet holes

Outer row rivet pitch at ends Depth of flange if manhole flanged **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 Manufacturers of Tubes Steel castings

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 easing 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

The foregoing is a correct description,

Dates of Survey During progress of work in shops - - Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

while building During erection on board vessel - - - Total No. of visits

Is this Boiler a duplicate of a previous case If so, state Vessel's name and Report No.

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

For the above calculation the tensile strength has been assumed as above.

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

P.O. Sjogren
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **FRI. 4 DEC 1936**

Assigned *See Other Gov. Rpt. 10953*

