

# REPORT ON BOILERS.

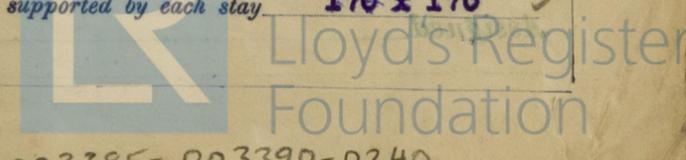
No. 71780

Received at London Office 11 JUN 1947

Date of writing Report 20.5.47 When handed in at Local Office 31.5.47 Port of **GLASGOW.**  
 No. in Survey held at **ARDROSSAN** Date, First Survey **13th March 1947** Last Survey **13th May, 1947.**  
 7. Book. (Number of Visits 11) Gross **1991**  
 on the **"NARVA" ex "EMPIRE CONFERENCE"** Tons Net **1076**  
 Built at **GAVLE** By whom built **GAVLE VRVS-VERKSTADS** Yard No. When built **1943**  
 Engines made at **HAMBURG** By whom made **CHRISTIANSEN & MEYER** Engine No. When made **1943**  
 Boilers made at **HAMBURG** By whom made **CHRISTIANSEN & MEYER** Boiler No. **5773/74** When made **1943**  
 Nominal Horse Power Owners **GLEN & CO.** Port belonging to **GLASGOW**

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

Manufacturers of Steel (Letter for Record)  
 Total Heating Surface of Boilers **2971 sq. ft.** Is forced draught fitted **Yes** Coal or Oil fired  
 No. and Description of Boilers **Two Cylindrical Multitubular** Working Pressure **16 kg per cm<sup>2</sup>**  
 Tested by hydraulic pressure to **230 lbs**/Date of test **5.5.47.** No. of Certificate - Can each boiler be worked separately **Yes**  
 Area of Firegrate in each Boiler **94.3 sq. in.** No. and Description of safety valves to each boiler **Two @ 2" dia. = 6.28 2/4**  
 Area of each set of valves per boiler **6.28 sq. in.** Pressure to which they are adjusted **227 lbs** 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 **well clear** Is oil fuel carried in the double bottom under boilers **No**  
 Smallest distance between shell of boiler and tank top plating **2' 6"** Is the bottom of the boiler insulated **Yes**  
 Largest internal dia. of boilers **3600 m/m** Length **3194 m/m** Shell plates: Material **S.M. Steel** Tensile strength **47/56**  
 Thickness **30 m/m** Are the shell plates welded or flanged **flanged** Description of riveting: circ. seams {<sup>end</sup> **double**  
 Long. seams **treble** Diameter of rivet holes in {<sup>circ. seams</sup> **32** {<sup>inter.</sup> **84**  
 {<sup>long. seams</sup> **32** {<sup>pitch of rivets</sup> **190**  
 Percentage of strength of circ. end seams {<sup>plate</sup> **32** Percentage of strength of circ. intermediate seam {<sup>plate</sup> **32**  
 {<sup>rivets</sup> **32** {<sup>rivets</sup> **32**  
 Percentage of strength of longitudinal joint {<sup>plate</sup> **32** Working pressure of shell by Rules  
 {<sup>rivets</sup> **32** {<sup>combined</sup> **32**  
 Thickness of butt straps {<sup>outer</sup> **27** No. and Description of Furnaces in each Boiler **Two corrugated**  
 {<sup>inner</sup> **27**  
 Material **Steel** Tensile strength **35/44** Smallest outside diameter **1084**  
 Length of plain part {<sup>top</sup> **10"** Thickness of plates {<sup>crown</sup> **17** Description of longitudinal joint **welded**  
 {<sup>bottom</sup> **15"** {<sup>bottom</sup> **17**  
 Dimensions of stiffening rings on furnace or c.c. bottom - Working pressure of furnace by Rules  
 End plates in steam space: Material **Steel** Tensile strength **35/44** Thickness **28** Pitch of stays **400 x 360**  
 How are stays secured **double nuts and riveted washers** Working pressure by Rules  
 End plates: Material {<sup>front</sup> **steel** Tensile strength {**35/44** Thickness {**28**  
 {<sup>back</sup> **steel** {**35/44** {**22**  
 Mean pitch of stay tubes in nests **226 x 220** Pitch across wide water spaces **370** Working pressure {<sup>front</sup>  
 {<sup>back</sup>  
 Orders to combustion chamber tops: Material **steel** Tensile strength **35/44** Depth and thickness of girder  
 centre **160, 20** Length as per Rule **600 m/m** Distance apart **200** No. and pitch of stays  
 each **2, 173** Working pressure by Rules - Combustion chamber plates: Material **Steel**  
 Tensile strength **35/44** Thickness: Sides **18.5** Back **19** Top **18.5** Bottom **23 m/m**  
 Pitch of stays to ditto: Sides **165 x 173** Back **170 x 170** Top **173 x 200** Are stays fitted with nuts or riveted over **riveted**  
 Working pressure by Rules Front plate at bottom: Material **steel** Tensile strength **35/44**  
 Thickness **28** Lower back plate: Material **steel** Tensile strength **35/44** Thickness **28**  
 Pitch of stays at wide water space **370 x 170** Are stays fitted with nuts or riveted over **nuts**  
 Working Pressure Main stays: Material **steel** Tensile strength **34/32** **34/42**  
 Diameter {<sup>At body of stay,</sup> **77** No. of threads per inch **6** Area supported by each stay **400 x 360**  
 {<sup>or</sup>  
 {<sup>at turned off part,</sup> **35** Screw stays: Material **steel** Tensile strength **35/44**  
 {<sup>or</sup> No. of threads per inch **9** Area supported by each stay **170 x 170**



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Working pressure by Rules Are the stays drilled at the outer ends No ✓ Margin stays: Diameter At turned off part, 47 & 53  
 No. of threads per inch 9 Area supported by each stay 370 x 170 ✓ Working pressure by Rules  
 Tubes: Material steel External diameter 83 ✓ Plain 83 ✓ Thickness 4 ✓ No. of threads per inch 9 ✓  
 Pitch of tubes 113 x 110 ✓ Working pressure by Rules Manhole compensation: Size of opening  
 shell plate 320 x 425 ✓ Section of compensating ring 900 x 1100 x 30 No. of rivets and diameter of rivet holes 54, 32 ✓  
 Outer row rivet pitch at ends 225 ✓ Depth of flange if manhole flanged 100 ✓ 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  
 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 Schmidt Manufacturers of Tubes  
Steel forgings  
Steel castings  
 Number of elements 32 per blk. Material of tubes steel Internal diameter and thickness of tubes 17 m/m 2 1/2 m/m  
 Material of headers steel Tensile strength 35/44 kg. Thickness 24 m/m Can the superheater be shut off  
 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 sq. ins. Are the safety valves fitted with easing gear Yes Working pressure as  
 Rules Pressure to which the safety valves are adjusted 230 lbs. Hydraulic test pressure  
 tubes 400 lbs/sq. in. forgings and castings - and after assembly in place - Are drain cocks  
 valves fitted to free the superheater from water where necessary valves  
 Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes  
 The foregoing is a correct description,  
 Manufacture

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

The quality of the workmanship so far as could be seen is good. ✓  
The boilers were subjected to a hydraulic test of 230 lbs. and found satisfactory. ✓  
The safety valves were adjusted under steam to a pressure of 227 lbs. ✓  
No sign of distortion was found on the combustion chamber girders and top plating. ✓

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

J. Crawford.  
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute GLASGOW 30 JUN 1947  
 Assigned SEE ACCOMPANYING MACHINERY REPORT.

