

## REPORT ON BOILERS.

No. 7198

Received at London Office 2 NOV. 1927

Date of writing Report 1927 When handed in at Local Office 31.10.1927 Port of Glasgow

No. in Reg. Book. Survey held at Glasgow Date, First Survey 9.5.27 Last Survey 24.10.1927

on the S. Astra III (Number of Visits 36) Tons {Gross 5640 Net 3322

Master Built at Monfalcone Italy By whom built Cantiere Navale Triestino Yard No. 186 When built 1927

Engines made at Glasgow By whom made David Rowan & Co L<sup>td</sup> Engine No. 866 When made 1927

Boilers made at Glasgow By whom made David Rowan & Co L<sup>td</sup> Boiler No. 866 When made 1927

Nominal Horse Power 651 Owners Port belonging to

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

Manufacturers of Steel Fried Krupp A.G. Friedrich Alfred Hütte of Rheinhausen (Letter for Record (S) ✓)

Total Heating Surface of Boilers 9615 sq ft Is forced draught fitted yes ✓ Coal or Oil fired oil ✓

No. and Description of Boilers Three single ended 3SB. Working Pressure 200 ✓

Tested by hydraulic pressure to 350 ✓ Date of test 14.10.27 ✓ No. of Certificate 17639 ✓ Can each boiler be worked separately yes ✓

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

Area of each set of valves per boiler {per Rule 22.36 as fitted 25.130"} Pressure to which they are adjusted — Are they fitted with easing gear —

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 16'-3" ✓ Length 12'-0" ✓ Shell plates: Material Steel ✓ Tensile strength 28-32 tons ✓

Thickness 1 1/2" ✓ Are the shell plates welded or flanged no ✓ Description of riveting: circ. seams {end DTR ✓ inter. ✓

long. seams DBS. TR ✓ Diameter of rivet holes in {circ. seams F 1 5/8" B 1 1/2" ✓ long. seams 1 1/2" ✓ Pitch of rivets {F 3.41" B 4.17" ✓ 10 5/16" ✓

Percentage of strength of circ. end seams {plate F 61.5 B 64 rivets F 44.5 B 47.5 ✓ Percentage of strength of circ. intermediate seam {plate 85.45 rivets 89.3 ✓

Percentage of strength of longitudinal joint {plate 88.8 rivets 88.8 ✓ Working pressure of shell by Rules 200 ✓

Thickness of butt straps {outer 1 1/8" inner 1 1/4" ✓ No. and Description of Furnaces in each Boiler Three Deighton ✓

Material Steel ✓ Tensile strength 26-30 tons ✓ Smallest outside diameter 46.28" ✓

Length of plain part {top 41" bottom 64" ✓ Thickness of plates {crown 41" bottom 64" ✓ Description of longitudinal joint welded ✓

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 202 ✓

End plates in steam space: Material Steel ✓ Tensile strength 26-30 tons ✓ Thickness 1 3/8" ✓ Pitch of stays 23" x 18" ✓ & 22" x 20"

How are stays secured 10 N ✓ Working pressure by Rules 208 ✓ 4201 ✓

Tube plates: Material {front Steel ✓ back " ✓ Tensile strength {26-30 tons ✓ Thickness {27/32" ✓ 25/32" ✓

Mean pitch of stay tubes in nests 10.281 ✓ Pitch across wide water spaces 13 1/2" ✓ Working pressure {front 207 back 208 ✓

Girders to combustion chamber tops: Material Steel ✓ Tensile strength 28-32 tons ✓ Depth and thickness of girder at centre 2 @ 8 1/8" x 1 1/8" ✓ Length as per Rule 34.56" ✓ Distance apart 9" ✓ No. and pitch of stays in each 3 @ 8 1/4" ✓ Working pressure by Rules 200 ✓

Tensile strength 26-30 ✓ Thickness: Sides 21/32" Back 21/32" Top 21/32" Bottom 27/32" ✓

Pitch of stays to ditto: Sides 8 1/4" x 9" ✓ Back 8 1/2" x 8 3/4" ✓ Top 8 1/4" x 9" ✓ Are stays fitted with nuts or riveted over nuts ✓

Working pressure by Rules 201 ✓ Front plate at bottom: Material Steel ✓ Tensile strength 26-30 tons ✓

Thickness 27/32" ✓ Lower back plate: Material Steel ✓ Tensile strength 26-30 tons ✓ Thickness 51/64" ✓

Pitch of stays at wide water space 13 1/2" x 8 1/2" ✓ Are stays fitted with nuts or riveted over nuts ✓

Working Pressure 203 ✓ Main stays: Material Steel ✓ Tensile strength 28-32 tons ✓

Diameter {At body of stay, 3 1/4" x 3" ✓ No. of threads per inch 6 ✓ Area supported by each stay 437 & 375 sq ✓

Working pressure by Rules 212 & 209 ✓ Screw stays: Material Steel ✓ Tensile strength 26-30 tons ✓

Diameter {At turned off part, 1 5/8" ✓ No. of threads per inch 9 ✓ Area supported by each stay 75.3 ✓

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Working pressure by Rules 202 Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 17/8" or Over threads 17/8" ✓

No. of threads per inch 9 Area supported by each stay 94.50 Working pressure by Rules 225

Tubes: Material 20W ✓ External diameter { Plain 2 1/2" ✓ Thickness { 8WS ✓ No. of threads per inch 9 ✓

Pitch of tubes 3 3/4" x 3 5/8" ✓ Working pressure by Rules 275 ✓ Manhole compensation: Size of opening in shell plate 15 1/2" x 19 1/2" ✓ Section of compensating ring 8 3/4" x 1 15/32" ✓ No. of rivets and diameter of rivet holes 32 @ 1 1/2" ✓

Outer row rivet pitch at ends 10 1/2" ✓ Depth of flange if manhole flanged 3" ✓ Steam Dome: Material none

Tensile strength 1001 Thickness of shell 1001 Description of longitudinal joint 1001

Diameter of rivet holes 1001 Pitch of rivets 1001 Percentage of strength of joint { Plate 1001 Rivets 1001

Internal diameter 1001 Working pressure by Rules 1001 Thickness of crown 1001 No. and diameter of stays 1001 Inner radius of crown 1001 Working pressure by Rules 1001

How connected to shell 1001 Size of doubling plate under dome 1001 Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell 1001

Type of Superheater noneManufacturers of { Tubes 1001 Steel castings 1001Number of elements 1001Material of tubes 1001Internal diameter and thickness of tubes 1001Material of headers 1001Tensile strength 1001Thickness 1001

Can the superheater be shut off and

the boiler be worked separately 1001Is a safety valve fitted to every part of the superheater which can be shut off from the boiler 1001Area of each safety valve 1001Are the safety valves fitted with easing gear 1001Working pressure as per 1001Rules 1001Pressure to which the safety valves are adjusted 1001Hydraulic test pressure: 1001tubes 1001castings 1001and after assembly in place 1001Are drain cocks or valves fitted 1001to free the superheater from water where necessary 1001Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with 1001

The foregoing is a correct description,  
*For David Rowan & Co. Ltd.* Manufacturer.  
*Arch. H. Grierson*

Dates of Survey { During progress of work in shops - - -  
 while building { During erection on board vessel - - -

See Accompanying machinery report

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) 1001

Total No. of visits 36

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

The boilers have been constructed under special survey in accordance with the Rules. They are about to be dispatched to Trieste to be fitted in the vessel.

Survey Fee 1001£ See Machinery RptWhen applied for, 1001Travelling Expenses (if any) £ 1001When received, 1001

*S. C. Davis*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute 1001

GLASGOW 1- NOV 1927

TUES. 13 MAR 1928

Assigned 1001Deferred. 1001

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