

## REPORT ON BOILERS.

No. 48174

Received at London Office 11 JUL 1928

Date of writing Report 192 When handed in at Local Office 7-7-192 Port of Glasgow

No. in Reg. Book. Survey held at Glasgow Date, First Survey 18-11-27 Last Survey 5-7-1928

on the new steel S/S "CUSTODIAN" (Number of Visits 56) Tons { Gross 5843 Net 3695

Master Built at Glasgow By whom built Chas Bonnell & Co Ltd Yard No. 412 When built 1928

Engines made at Glasgow By whom made David Rowan & Co Ltd Engine No. 883 When made 1928

Boilers made at Glasgow By whom made David Rowan & Co Ltd Boiler No. 883 When made 1928

Nominal Horse Power 524 Owners T & J. Harrison Port belonging to Liverpool

MULTITUBULAR BOILERS ~~MAIN, AUXILIARY, OR~~ DONKEY.

Manufacturers of Steel James Dunlop & Co Ltd Steel Company of Scotland Ltd (Letter for Record (r) )

Total Heating Surface of Boilers 1242 sq ft Is forced draught fitted no Coal or Oil fired coal

No. and Description of Boilers one single ended Working Pressure 120

Tested by hydraulic pressure to 230 Date of test 22-5-28 No. of Certificate 17917 Can each boiler be worked separately ✓

Area of Firegrate in each Boiler 35 sq ft No. and Description of safety valves to each boiler two direct spring

Area of each set of valves per boiler { per Rule 11.59" as fitted 11.860" Pressure to which they are adjusted 124 Are they fitted with easing gear yes

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

Smallest distance between boilers or uptakes and bunkers or woodwork 10" Is oil fuel carried in the double bottom under boilers no tanks

Smallest distance between shell of boiler and tank top plating 15 1/4" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 12'-6" Length 10'-6" Shell plates: Material steel Tensile strength 28-32 tons

Thickness 23/32" Are the shell plates welded or flanged no Description of riveting: circ. seams { end DR inter. ✓

long. seams DBS TR Diameter of rivet holes in { circ. seams 13/16" long. seams 7/8" Pitch of rivets { 2.367" 5.554" ✓

Percentage of strength of circ. end seams { plate 65.4 rivets 50.2 Percentage of strength of circ. intermediate seam { plate 84.24 rivets 92.5 combined 91.6 Working pressure of shell by Rules 120

Thickness of butt straps { outer 9/16" inner 1/16" No. and Description of Furnaces in each Boiler two plain

Material steel Tensile strength 26-30 tons Smallest outside diameter 43 1/4"

Length of plain part { top 75" bottom 75" Thickness of plates { crown 5/8" bottom 5/8" Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 122

End plates in steam space: Material steel Tensile strength 26-30 tons Thickness 1 1/16" Pitch of stays 17 1/4" x 23 3/4"

How are stays secured DN

Tube plates: Material { front steel back " Tensile strength { 26-30 tons Thickness { 23/32" 13/16" ✓

Mean pitch of stay tubes in nests 12.1875" Pitch across wide water spaces 14 1/2" Working pressure { front 129 back 124

Girders to combustion chamber tops: Material steel Tensile strength 28-32 tons Depth and thickness of girder at centre 2 @ 14" x 5/8" Length as per Rule 30.4" Distance apart 9.875" No. and pitch of stays in each 2 @ 9 3/4" Working pressure by Rules 122 Combustion chamber plates: Material steel

Tensile strength 26-30 tons Thickness: Sides 19/32" Back 9/16" Top 19/32" Bottom 19/16"

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

Working pressure by Rules 126 Front plate at bottom: Material steel Tensile strength 26-30 tons

Thickness 13/16" Lower back plate: Material steel Tensile strength 26-30 tons Thickness 5/8"

Pitch of stays at wide water space 13" x 9" Are stays fitted with nuts or riveted over nuts

Working Pressure 125 Main stays: Material steel Tensile strength 28-32 tons

Diameter { At body of stay, 2 1/2" No. of threads per inch 6 Area supported by each stay 419 sq in

Working pressure by Rules 131 Screw stays: Material Iron Tensile strength 21.5 tons

Diameter { At turned off part, 1 3/8" No. of threads per inch 9 Area supported by each stay 81 sq in



Working pressure by Rules 125 Are the stays drilled at the outer ends ☒ Margin stays: Diameter { At turned off part, 1 1/2" or Over threads 1 1/2" ✓  
No. of threads per inch 9 Area supported by each stay 99 in<sup>2</sup> Working pressure by Rules 126  
Tubes: Material Iron External diameter { Plain 3 1/2" Stay 3 1/2" Thickness { 8 W.S. 1/4" 5/16" No. of threads per inch 9  
Pitch of tubes 4 7/8 x 4 7/8 Working pressure by Rules 215 Manhole compensation: Size of opening in shell plate 19 x 15 Section of compensating ring 5 1/2 x 23 No. of rivets and diameter of rivet holes 38 @ 1 5/16  
Outer row rivet pitch at ends 5 15/16 Depth of flange if manhole flanged 3 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 none 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 23 inclusive for boilers been complied with yes

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

Dates of Survey { During progress of work in shops - - See Accompanying  
while building { During erection on board vessel - - Machinery Report  
Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)  
Total No. of visits 5 6

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

The materials and workmanship are good.  
The boiler has been constructed under Special Survey in accordance with the Rules, satisfactorily fitted in the vessel and its safety valves adjusted under steam.

Survey Fee ... £ 8 : 6 : When applied for, 9. 7. 1928  
Travelling Expenses (if any) £ : : When received, 12. 7. 1928

S. Davis.  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 10 JUL 1928

Assigned See Accompanying Machinery Report.



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