

# REPORT ON BOILERS.

No. 7750

Received at London Office 21 MAR 1928

Date of writing Report 1928 When handed in at Local Office 19.3.1928 Port of Glasgow

No. in Reg. Book. Survey held at Glasgow Date, First Survey 16.9.27 Last Survey 14-3-1928

on the new steel S/S "CAPE ST ANDREW." (Number of Visits 33) Tons {Gross 5094 Net 3163}

Master Built at Port Glasgow By whom built R. Duncan & Co. Yard No. 381 When built 1928

Engines made at Glasgow By whom made David Rowan & Co. Ltd Engine No. 868 When made 1928

Boilers made at Glasgow By whom made David Rowan & Co. Ltd Boiler No. 868 When made 1928

Nominal Horse Power 545 Owners Sun Shipping Co. Ltd Port belonging to London (Cotts (Mitchell) Co.)

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

Manufacturers of Steel James Dunlop & Co. Ltd. Scottish Iron and Steel Co. Ltd. David Beith & Sons Ltd. United Ship and Bar Mills Ltd. (Letter for Record (S) ✓)

Total Heating Surface of Boilers 8001 sq ft Is forced draught fitted yes Coal or Oil fired coal ✓

No. and Description of Boilers Three single ended marine 358 Working Pressure 200 ✓

Tested by hydraulic pressure to 350 Date of test 19-12-27 No. of Certificate 17712 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 57.5 sq ft No. and Description of safety valves to each boiler Improved high lift ✓

Area of each set of valves per boiler {per Rule 2.22 sq" as fitted 2 1/2" Pressure to which they are adjusted 205 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 uptakes and bunkers or woodwork (corner) 6" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 2'-10" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 16'-0" Length 11'-0" Shell plates: Material steel Tensile strength 28-32 tons

Thickness 1 29/64" Are the shell plates welded or flanged no Description of riveting: circ. seams {end DR inter. F 3.388" B 4.131" long. seams DBS. TR. Diameter of rivet holes in {circ. seams F 1 5/16" B 1 1/2" Pitch of rivets {10.125" ✓

Percentage of strength of circ. end seams {plate F 61.3 B 63.4 rivets F 45.15 B 48.3 Percentage of strength of circ. intermediate seam {plate rivets ✓

Percentage of strength of longitudinal joint {plate 85.18 rivets 92.4 combined 88.86 Working pressure of shell by Rules 202 lbs

Thickness of butt straps {outer 1 7/64" inner 1 15/64" No. and Description of Furnaces in each Boiler Three Deighton 3 cf

Material steel Tensile strength 26-30 tons Smallest outside diameter 24 5/16"

Length of plain part {top bottom ✓ Thickness of plates {crown 2 1/32" bottom 2 1/32" Description of longitudinal joint welded ✓

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 203

End plates in steam space: Material steel Tensile strength 26-30 tons Thickness 1 7/16" Pitch of stays 23 1/4" x 22 1/2" 19 1/2"

How are stays secured D.N. Working pressure by Rules 200

Tube plates: Material {front steel back " Tensile strength {26-30 tons " Thickness {27/32" 23/32" app. 27/32

Mean pitch of stay tubes in nests 9 1/4" Pitch across wide water spaces 13 1/2" Working pressure {front 207 back 215

Girders to combustion chamber tops: Material steel Tensile strength 28-32 tons Depth and thickness of girder

at centre 2 @ 8 7/8" x 7/8" Length as per Rule 33 9/16" Distance apart 9 1/4" No. and pitch of stays

in each 3 @ 8" Working pressure by Rules 201 Combustion chamber plates: Material steel

Tensile strength 26-30 tons Thickness: Sides 2 1/32" Back 2 1/32" Top 2 1/32" Bottom 7/8"

Pitch of stays to ditto: Sides 8" x 9 1/4" Back 8 7/16" x 8 7/8" Top 8" x 9 1/4" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 200 Front plate at bottom: Material steel Tensile strength 26-30 tons

Thickness 2 1/32" Lower back plate: Material steel Tensile strength 26-30 tons Thickness 1 3/16"

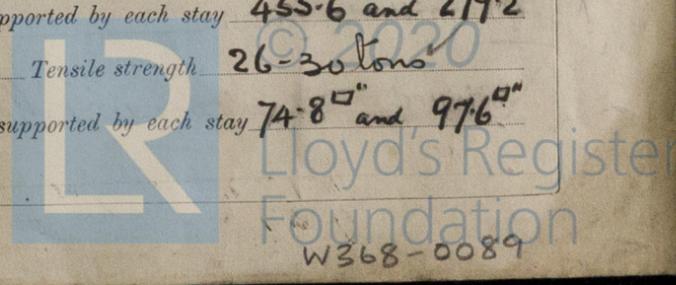
Pitch of stays at wide water space 13 1/2" Are stays fitted with nuts or riveted over nuts

Working Pressure 201 Main stays: Material steel Tensile strength 28-32 tons

Diameter {At body of stay, 2 3/4" & 3 1/4" No. of threads per inch 6 Area supported by each stay 455.6" and 279.2"

Working pressure by Rules 203 Screw stays: Material steel Tensile strength 26-30 tons

Diameter {At turned off part, 1 5/8" & 1 7/8" (back) No. of threads per inch 9 Area supported by each stay 74.8" and 97.6"



Working pressure by Rules **204 and 218** Are the stays drilled at the outer ends **no** Margin stays: Diameter <sup>At turned off part,</sup> **1 7/8"** <sub>or Over threads</sub>  
 No. of threads per inch **9** Area supported by each stay **103"** Working pressure by Rules **206**  
 Tubes: Material **Iron** External diameter <sup>Plain</sup> **2 1/2"** <sub>Stay</sub> **2 1/2"** Thickness **9 W.G.** <sup>5/16" 3/8" 7/16"</sup> No. of threads per inch **9**  
 Pitch of tubes **3 3/4" x 3 7/8"** Working pressure by Rules **230** Manhole compensation: Size of opening in shell plate **15 1/2" x 19 1/2"** Section of compensating ring **10 1/2" x 1 29/64"** No. of rivets and diameter of rivet holes **34 @ 1 1/2"**  
 Outer row rivet pitch at ends **10 1/4"** 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 <sup>Plate</sup> <sub>Rivets</sub>  
 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 <sup>Tubes</sup> <sub>Steel castings</sub>

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<sup>d</sup> W. Grierson

Dates of Survey <sup>During progress of work in shops - - -</sup> **See Accompanying** Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)  
<sub>while building</sub> <sup>During erection on board vessel - - -</sup> **Machinery report** Total No. of visits **33**

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

The materials and workmanship are good.  
 The boilers have been constructed under special survey in accordance with the Rules, satisfactorily fitted in the vessel and their safety valves adjusted.

Survey Fee ... .. £ **Survey Fee** When applied for, 192  
 Travelling Expenses (if any) £ : : When received, 192

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

Committee's Minute **GLASGOW 20 MAR 1928**

Assigned **See accompanying Mach<sup>y</sup> Report.**



**A. L.**  
**19/3/28**