Rpt. 5a.

REPORT ON BOILERS.

No. 47322

Received at London Office 14 DEC 1927

Date of writing Report 192 When handed in at Local Office 5·12·1927 Port of Glasgow

No. in Reg. Book. Survey held at Glasgow Date, First Survey 10·2·27 Last Survey 3-12 1927

(Number of Visits 57) Tons { Gross / Net

on the new steel S/S "CYMBELINE".

Master Built at Port Glasgow By whom built Wm Hamilton & Co Ltd Yard No. 399 When built 1927

Engines made at Glasgow By whom made David Rowan & Co Ltd Engine No. 859 When made 1927

Boilers made at Glasgow By whom made David Rowan & Co Ltd Boiler No. 859 When made 1927

Nominal Horse Power 572 Owners Port belonging to

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

Manufacturers of Steel Vereinigte Stahlwerke Abtlg Aug Thyssen Hütte Mühlheim Ruhr (Letter for Record (S))

Total Heating Surface of Boiler 2423 sq ft (1 SB) Is forced draught fitted yes Coal or Oil fired oil or coal

No. and Description of Boilers one single ended Forward boiler **Working Pressure** 220

Tested by hydraulic pressure to 380 Date of test 5-10-27 No. of Certificate 17615 Can each boiler be worked separately yes

Area of Firegrate in each Boiler (with 5'-6" Bars) 56 3/8 sq ft No. and Description of safety valves to each boiler two direct spring

Area of each set of valves per boiler { per Rule 15.45 sq in / as fitted 16.58 sq in } Pressure to which they are adjusted 225 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 2'-3" 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 14'-6 1/8" Length 11'-9" **Shell plates:** Material steel Tensile strength 28-32 tons

Thickness 17/16" 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 F 1 15/16" : B 1 1/2" / long. seams 1 1/2" } Pitch of rivets { F 3.405 B 4.057 / 10 1/4" }

Percentage of strength of circ. end seams { plate F. 61.4 B. 63 / rivets F 45.5 B 49.8 } Percentage of strength of circ. intermediate seam { plate / rivets }

Percentage of strength of longitudinal joint { plate 85.3 / rivets 92 / combined 89.1 } Working pressure of shell by Rules 220

Thickness of butt straps { outer 1 3/32" / inner 1 7/32" } **No. and Description of Furnaces in each Boiler** 3 Cf Three Deighton

Material steel Tensile strength 26-30 tons Smallest outside diameter 39 23/32" 42 9/32"

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

Dimensions of stiffening rings on furnace or c.c. bottom — Working pressure of furnace by Rules 222

End plates in steam space: Material steel Tensile strength 26-30 tons Thickness 17/16" Pitch of stays 22" × 20"

How are stays secured D.N. Working pressure by Rules 220

Tube plates: Material { front steel / back " } Tensile strength { 26-30 tons / " } Thickness { 7/8" / 3/4" }

Mean pitch of stay tubes in nests 9 1/4" Pitch across wide water spaces 13 1/2" Working pressure { front 223 / back 234 }

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

at centre 2@9" × 7/8" Length as per Rule 34 19/32" Distance apart 8 1/4" No. and pitch of stays

in each 3@8 1/4" Working pressure by Rules 226 **Combustion chamber plates:** Material steel

Tensile strength 26-30 tons Thickness: Sides 21/32" Back 21/32" Top 21/32" Bottom 7/8"

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

Working pressure by Rules 220 **Front plate at bottom:** Material steel Tensile strength 26-30 tons

Thickness 7/8" **Lower back plate:** Material steel Tensile strength 26-30 tons Thickness 53/64"

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

Working Pressure 220 **Main stays:** Material steel Tensile strength 28-32 tons

Diameter { At body of stay, or Over threads } 3 1/2" & 3 1/4" No. of threads per inch 6 Area supported by each stay 445 & 391 sq in

Working pressure by Rules 244 & 237 **Screw stays:** Material steel Tensile strength 26-30 tons

Diameter { At turned off part, or Over threads } 1 5/8" No. of threads per inch 9 Area supported by each stay 68 sq in

Working pressure by Rules 224 Are the stays drilled at the outer ends no ✓ Margin stays: Diameter { At turned off part, or Over threads } 1 7/8" ✓

No. of threads per inch 9 ✓ Area supported by each stay 92.4 □" Working pressure by Rules 238 □" ✓

Tubes: Material Iron ✓ External diameter { Plain 2 1/2" ✓ / Stay 2 1/2" ✓ } Thickness { 8 W.G. ✓ / 5/16" / 3/8" / 7/16" ✓ } No. of threads per inch 9 ✓

Pitch of tubes 3 3/4" × 3 5/8" ✓ Working pressure by Rules 300 ✓ **Manhole compensation:** Size of opening in shell plate 19 1/2 × 15 1/2" ✓ Section of compensating ring 8 3/4" × 1 7/16" ✓ 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 { 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 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
Arch. N. Grierson Manufacturer.

Dates of Survey while building { During progress of work in shops - - } See Accompanying { 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 57

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

A.G. 5/12/27.

Survey Fee ... ... £ See Machy Rpt | When applied for, 192

Travelling Expenses (if any) £ : : | When received, 192

S.C. Davis.

Engineer Surveyor to Lloyd's Register of Shipping.

C

Committee's Minute GLASGOW 13 DEC 1927

Assigned See accompanying report. A.A.13