

REPORT ON BOILERS.

Received at London Office 30 NOV 1927

Date of writing Report 1927 When handed in at Local Office 28.11.27 Port of Glasgow

No. in Reg. Book. Survey held at Glasgow Date, First Survey 22.6.27 Last Survey 23-11-1927

on the new steel S/S "ZAHRA" (Number of Visits 30) Tons {Gross 821 Net

Master Built at Glasgow By whom built Harland & Wolff Ltd Yard No. 811 G. When built 1927
Engines made at Glasgow By whom made D W Henderson & Co Ltd Engine No. 811 G When made 1927
Boilers made at Glasgow By whom made D W Henderson & Co Ltd Boiler No. 811 G When made 1927
Nominal Horse Power 159 Owners Vacuum Oil Co Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel David Colville & Sons Ltd & Lanarkshire Steel Co Ltd (Letter for Record (S))

Total Heating Surface of Boilers 2608 sq ft Is forced draught fitted yes Coal or Oil fired oil

No. and Description of Boilers two single ended Working Pressure 180

Tested by hydraulic pressure to 320 Date of test 23-9-27 No. of Certificate 17589 Can each boiler be worked separately yes

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler Two "High life"

Area of each set of valves per boiler {per Rule 50" as fitted 6.280" Pressure to which they are adjusted 180 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 5'-0" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 1'-6" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 11'-6" Length 10'-6" Shell plates: Material steel Tensile strength 28-32 tons

Thickness 3 1/2" Are the shell plates welded or flanged no Description of riveting: circ. seams {end DR. inter. -

long. seams UBS TR Diameter of rivet holes in {circ. seams 1 1/8" long. seams 1 1/16" Pitch of rivets {3.8" 7 7/16"

Percentage of strength of circ. end seams {plate 70.39 rivets 44.36 Percentage of strength of circ. intermediate seam {plate rivets

Percentage of strength of longitudinal joint {plate 85.71 rivets 94.69 combined 90.4 Working pressure of shell by Rules 184

Thickness of butt straps {outer 3/4" inner 7/8" No. and Description of Furnaces in each Boiler Two Deighton

Material steel Tensile strength 26-30 tons Smallest outside diameter 41.56"

Length of plain part {top bottom Thickness of plates {crown 1 1/2" bottom 3/2" Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 184

End plates in steam space: Material steel Tensile strength 26-30 tons Thickness 6 1/4" Pitch of stays 16" x 14"

How are stays secured DN Working pressure by Rules 185

Tube plates: Material {front steel back " Tensile strength {26-30 tons Thickness {6 1/4" 11" 16"

Mean pitch of stay tubes in nests 10 1/2" Pitch across wide water spaces 13 1/2" Working pressure {front 180 back 220

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

at centre 2 @ 8 1/2" x 5/8" Length as per Rule 30.25" Distance apart 8" No. and pitch of stays

in each 3 @ 7" Working pressure by Rules 187 Combustion chamber plates: Material steel

Tensile strength 26-30 tons Thickness: Sides 3/5" 64" Back 1 1/2" 32" Top 3/5" 64" Bottom 1 1/2" 16"

Pitch of stays to ditto: Sides 7" x 8" Back 8" x 8 3/16" Top 7" x 8" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 180 Front plate at bottom: Material steel Tensile strength 26-30 tons

Thickness 6 1/4" Lower back plate: Material steel Tensile strength 26-30 tons Thickness 6 1/4"

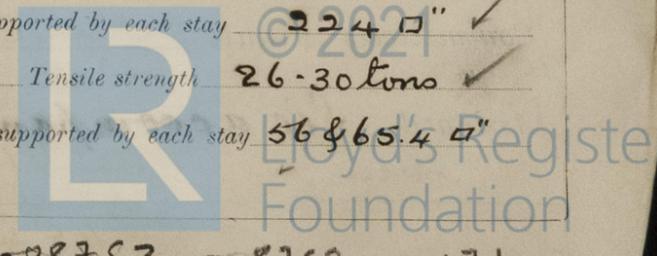
Pitch of stays at wide water space 14" Are stays fitted with nuts or riveted over nuts

Working Pressure 274 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 224 sq in

Working pressure by Rules 239 Screw stays: Material steel Tensile strength 26-30 tons

Diameter {At turned off part, } 1 3/8" & 1 1/2" No. of threads per inch 9 Area supported by each stay 56 & 65.4 sq in



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Working pressure by Rules 180.191 Are the stays drilled at the outer ends no Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. 1\frac{3}{4}"$

No. of threads per inch 9 Area supported by each stay 90 sq in Working pressure by Rules 201

Tubes: Material steel External diameter $\left\{ \begin{array}{l} \text{Plain } 2\frac{1}{2}" \\ \text{Stay } 2\frac{1}{2}" \end{array} \right. \checkmark$ Thickness $\left\{ \begin{array}{l} 9\text{ L.S.S. } \checkmark \\ 5\frac{1}{16}" \text{ \& } 7\frac{1}{16}" \end{array} \right. \checkmark$ No. of threads per inch 9

Pitch of tubes $3\frac{3}{4}" \times 3\frac{5}{8}" \checkmark$ Working pressure by Rules 230 Manhole compensation: Size of opening in shell plate $20 \times 16" \checkmark$ Section of compensating ring $9 \times 3\frac{1}{2}" \checkmark$ No. of rivets and diameter of rivet holes $44 \times 36 \times 1\frac{1}{16}"$

Outer row rivet pitch at ends $7\frac{1}{16}" \checkmark$ Depth of flange if manhole flanged 3" Steam Dome: Material none

Tensile strength 2118 Thickness of shell Description of longitudinal joint

Diameter of rivet holes Pitch of rivets Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \checkmark$

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

Number of elements Material of tubes Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right. \checkmark$ 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 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

The foregoing is a correct description,
FOR DAVID & Wm HENDERSON & CO., LTD. Manufacturer.
 DIRECTOR

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops - -} \\ \text{while building} \end{array} \right. \checkmark$ See accompanying machinery report
 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
 Total No. of visits

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

The workmanship and materials 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 under steam

Survey Fee ... £ See Machinery Report When applied for, 192

Travelling Expenses (if any) £ When received, 192

Schwans
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 29 NOV 1927**

Assigned See accompanying machinery report.

