

# REPORT ON BOILERS.

No. 86437

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Date of writing Report 192 When handed in at Local Office 192 Port of LIVERPOOL

No. in Reg. Book Survey held at BIRKENHEAD Date, First Survey 5<sup>th</sup> Dec/23 Last Survey 4<sup>th</sup> Feb. 1924

on the BOILER FOR VESSEL NO 338. W. J. YARWOOD & SONS LD. (Number of Visits 19) Tons {Gross Net

Master Built at By whom built Yard No. When built

Engines made at By whom made Engine No. When made

Boilers made at BIRKENHEAD By whom made GAMMELL LAIRD & CO LD. Boiler No. 2115 When made 1924

Nominal Horse Power 67 Owners Port belonging to

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

Manufacturers of Steel DAVID COLVILLE & SONS LD GLASGOW & JOHN SPENCER & SONS NEWCASTLE (Letter for Record S)

Total Heating Surface of Boilers 1180 SQ FT. Is forced draught fitted Coal or Oil fired COAL

No. and Description of Boilers ONE CYLINDRICAL MULTITUBULAR Working Pressure 140 LBS

Tested by hydraulic pressure to 260 LBS Date of test 1-2-24 No. of Certificate 2232 Can each boiler be worked separately

Area of Firegrate in each Boiler 45 3/4 sq ft No. and Description of safety valves to each boiler 2, Spring loaded

Area of each set of valves per boiler {per Rule 9.5 sq in as fitted 9.8 sq in Pressure to which they are adjusted 140 LBS 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 1'-0" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating Is the bottom of the boiler insulated

Largest internal dia. of boilers 12'-0" Length 10'-6" Shell plates: Material STEEL Tensile strength 28-32 TONS

Thickness 13/16 Are the shell plates welded or flanged Description of riveting: circ. seams {end Double inter. 2.774

long. seams TREBLE Diameter of rivet holes in {circ. seams 15/16 long. seams 15/16 Pitch of rivets {6 1/4

Percentage of strength of circ. end seams {plate 66.2% rivets 50.3% Percentage of strength of circ. intermediate seam {plate 85% rivets 104.7%

Percentage of strength of longitudinal joint {plate 85% rivets 104.7% combined 91% Working pressure of shell by Rules 144.2 LBS

Thickness of butt straps {outer 5/8 inner 3/4 No. and Description of Furnaces in each Boiler TWO CORRUGATED MORISON TYPE

Material STEEL Tensile strength 26-30 TONS Smallest outside diameter 3'-10 1/4 3-6 7/8

Length of plain part {top Thickness of plates {crown 7/16 bottom 7/16 Description of longitudinal joint WELDED

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 145.5 LBS

End plates in steam space: Material STEEL Tensile strength 26-30 TONS Thickness 3/32 FRONT 29 32 BACK Pitch of stays 17" x 8"

How are stays secured 8 NUTS & WASHERS Working pressure by Rules 144 LBS

Tube plates: Material {front STEEL Tensile strength {26-30 TONS Thickness {3/32 13/16

Mean pitch of stay tubes in nests 10" x 15" Pitch across wide water spaces 14 3/4 Working pressure {front 26 LBS back 52 LBS

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

at centre 8" x 5 1/8 Length as per Rule 31 19/32 Distance apart 9" No. and pitch of stays

in each 2, 9 3/8" PITCH Working pressure by Rules 153.9 LBS Combustion chamber plates: Material STEEL

Tensile strength 26-30 TONS Thickness: Sides 5/8 Back 19/32 Top 5/8 Bottom 7/8

Pitch of stays to ditto: Sides 9" x 9 3/8 Back 9" x 9 3/8 Top 9" x 9 3/8 Are stays fitted with nuts or riveted over NUTS INSIDE OUTSIDE EXCEPT SHELL RIVETED OUTSIDE

Working pressure by Rules 151.6 & 141.8 LBS Front plate at bottom: Material STEEL Tensile strength 26-30 TONS

Thickness 3/32 Lower back plate: Material STEEL Tensile strength 26-30 TONS Thickness 29/32

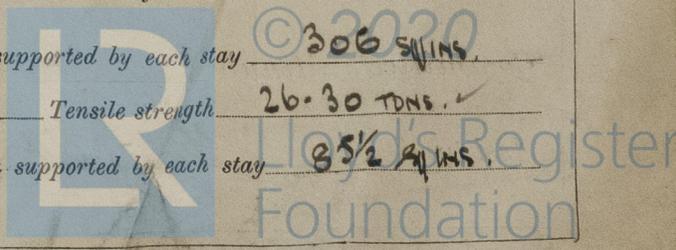
Pitch of stays at wide water space 14 3/4" x 10" Are stays fitted with nuts or riveted over

Working Pressure 147.3 LBS Main stays: Material STEEL Tensile strength 28-32 TONS

Diameter {At body of stay 2 1/2" or Over threads No. of threads per inch 6 Area supported by each stay 306 sq ins

Working pressure by Rules 144.8 LBS Screw stays: Material STEEL Tensile strength 26-30 TONS

Diameter {At turned off part 1 1/2" or Over threads No. of threads per inch 9 Area supported by each stay 85 1/2 sq ins



Working pressure by Rules 146.6 lbs Are the stays drilled at the outer ends No Margin stays: Diameter <sup>At turned off part</sup> 1 3/4" or <sup>Over threads</sup> 1 3/4"

No. of threads per inch 9 Area supported by each stay 112.812 sq ins. Working pressure by Rules 160.8 lbs

Tubes: Material IRON External diameter <sup>Plain</sup> 3 3/4" <sup>Stay</sup> 3 3/4" Thickness <sup>8 Wg</sup> 5/16" No. of threads per inch 9

Pitch of tubes 5" x 5" Working pressure by Rules 220.1 lbs Manhole compensation: Size of opening in shell plate 2 1/4" + 1 7/4" Section of compensating ring 7 5/8" x 7/8" No. of rivets and diameter of rivet holes 44, 15/16 DIA.

Outer row rivet pitch at ends 6 3/8" Depth of flange if manhole flanged 3 1/4" Steam Dome: Material \_\_\_\_\_

Tensile strength \_\_\_\_\_ Thickness of shell \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_

Diameter of rivet holes \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Percentage of strength of joint <sup>Plate</sup> \_\_\_\_\_ <sup>Rivets</sup> \_\_\_\_\_

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 \_\_\_\_\_ Manufacturers of <sup>Tubes</sup> \_\_\_\_\_ <sup>Steel castings</sup> \_\_\_\_\_

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,  
*W. J. Laid* Manufacturer.

Dates of Survey <sup>During progress of work in shops - -</sup> 1928 Dec 5, 10, 11, 12, 19, 21, 22, 24, 25, 26, 27, 28, 31, Feb 4, 11, 14, 18 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) Yes

<sup>while building</sup> <sup>During erection on board vessel - - -</sup> \_\_\_\_\_ Total No. of visits 19

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

The Boiler has now been built under Special Survey and in accordance with the approved plan and Secretary's letter E 14<sup>th</sup> NOVEMBER 1928. The materials and workmanship are of a good quality and when tested under hydraulic pressure to 260 lbs per sq inch the boiler was found tight and satisfactory in every respect. The Boiler is being forwarded to Messrs W. J. Fairwood & Sons Ltd. Manchester for fitting in vessel No 338 building to class.

Survey Fee ... .. £ 7 : 18 : 0 } When applied for, 8 FEB 1924

Travelling Expenses (if any) £ : : } When received, 8 FEB 1924

*John Dykes* - *J. Laid*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute LIVERPOOL - 8 FEB 1924

Assigned Transmit to London *JR*

