

# REPORT ON BOILERS.

No. 12364

Received at London Office - 2 JUN 1925

Date of writing Report 28/5/1925 When handed in at Local Office 29/5/1925 Port of Middlesbrough

No. in Survey held at Stockton-on-Tees Date, First Survey 7th April Last Survey 28/5/1925

g. Book. (Number of Visits 8) Gross 238 Tons Net 105

on the S.S. 'Swazi'

Master Built at Northwich By whom built W.T. Yarwood & Southard No. 345 When built 1927

Engines made at Northwich By whom made W. J. Yarwood & Sons, Ltd. Engine No. 176 When made 1927

Boilers made at Stockton By whom made Messrs Riley Bros Ltd Boiler No. 5602 When made 1925

Nominal Horse Power 43 Owners R. P. Houston & Co. Ltd Port belonging to London

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

Manufacturers of Steel David Colville & Sons Ltd., South Durham & Iron Coy. (Letter for Record (S))  
Port Talbot Steel Coy.

Total Heating Surface of Boilers 755 sq ft Is forced draught fitted no Coal or Oil fired Coal

No. and Description of Boilers One Single End. Working Pressure 150 lbs

Tested by hydraulic pressure to 275 lbs Date of test 28-5-25 No. of Certificate 6466 Can each boiler be worked separately ✓

Area of Firegrate in each Boiler 28 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 6.1 sq ft as fitted 7.96 sq ft } Pressure to which they are adjusted 145 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 18" Is oil fuel carried in the double bottom under boilers ✓

Smallest distance between shell of boiler and tank top plating ✓ Is the bottom of the boiler insulated no

Largest internal dia. of boilers 9'-6" Length 9'-6" Shell plates: Material steel Tensile strength 28-32 tons

Thickness 11/16" Are the shell plates welded or flanged ✓ Description of riveting: circ. seams { end DR. LAP. inter. ✓ }  
 { Double Butt Straps } Diameter of rivet holes in { circ. seams 15/16" } Pitch of rivets { 3" }  
 { Triple Riveted } { long. seams 13/16" }  
 { 4 Rivets in Fit }

Percentage of strength of circ. end seams { plate 68.75 rivets 54.8 } Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓ }

Percentage of strength of longitudinal joint { plate 84.8 rivets 86.6 combined 91.45 } Working pressure of shell by Rules 151 lbs

Thickness of butt straps { outer 13 x 17/32" inner 13 x 21/32" } No. and Description of Furnaces in each Boiler Two Plain

Material Steel Tensile strength 26-30 tons Smallest outside diameter 36"

Length of plain part { top 65.59" bottom 75.0" } Thickness of plates { crown 20/32" bottom 1/32" } Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 147 lbs

End plates in steam space: Material Steel Tensile strength 26-30 tons Thickness 29/32" Pitch of stays 15 1/2" } 16" }  
7" } 14 TO }  
16" } TUBES }

How are stays secured Double Nuts and loose washers 9" x 29/32" Working pressure by Rules 159 lbs

Tube plates: Material { front Steel back Steel } Tensile strength { 26-30 tons } Thickness { 21/32" }  
 Working pressure { front 164 lbs back 158" }

Lean pitch of stay tubes in nests 9.81 Pitch across wide water spaces 13 1/4" x 8 1/2" Working pressure { front 164 lbs back 158" }

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

at centre 6 3/4" x 13/4" Length as per Rule 28" Distance apart 8" No. and pitch of stays

at each 2 c 8 1/2" Working pressure by Rules 154 lbs Combustion chamber plates: Material Steel

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

Pitch of stays to ditto: Sides 8 1/2" x 8 3/4" Back 8 1/2" x 9 3/4" Top 8 1/2" x 8" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 161 lbs Front plate at bottom: Material Steel Tensile strength 26-30 tons

Thickness 29/32" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 29/32"

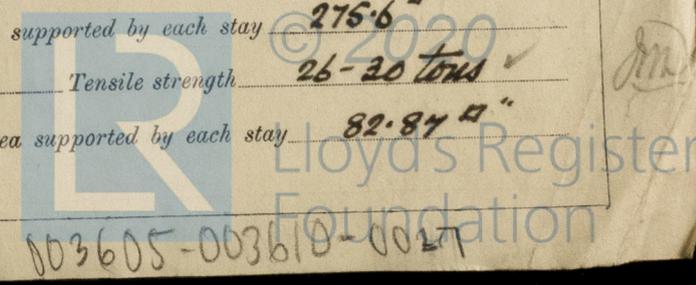
Pitch of stays at wide water space 13 1/4" x 8 1/2" Are stays fitted with nuts or riveted over nuts

Working Pressure 272 lbs 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 275.6 sq in  
 { Over threads, } Tensile strength 26-30 tons

Working pressure by Rules 160 lbs Screw stays: Material steel Tensile strength 26-30 tons

Diameter { At turned off part, 1 1/2" } No. of threads per inch 9 } Area supported by each stay 82.84 sq in  
 { Over threads, }



Working pressure by Rules 151 lbs Are the stays drilled at the outer ends no Margin stays: Diameter 1 7/8"  
 No. of threads per inch 9 Area supported by each stay 92.43 sq" Working pressure by Rules 164 lbs  
 Tubes; Material iron External diameter 3 1/4" Thickness 9 WG. 5/16" No. of threads per inch 9  
 Pitch of tubes 4 1/4" x 4 1/4" Working pressure by Rules S 210. P 180. Manhole compensation: Size of opening in  
 shell plate 16" x 20" Section of compensating ring 7" x 1 3/16" MC NEIL No. of rivets and diameter of rivet holes 40 - 1 5/16"  
 Outer row rivet pitch at ends 6 1/2" Depth of flange if manhole flanged ✓ Steam Dome: Material ✓  
 Tensile strength \_\_\_\_\_ Thickness of shell \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_  
 Diameter of rivet holes \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Percentage of strength of joint Plate  
 Internal diameter \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_ Thickness of crown \_\_\_\_\_ Rivets  
 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 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 OH

**RILEY BROS. (BOILERMAKERS) LIMITED.**  
 The foregoing is a correct description,  
J. H. Shields SECRETARY, Manufacturer.

Dates of Survey 1923  
 while building Apr. 7, 17, 24, 30, May 6, 13, 22, 28. Are the approved plans of boiler and superheater forwarded herewith  
 (If not state date of approval.)  
 Total No. of visits 8.

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.)  
This boiler has been constructed under Special Survey: it is of good material and workmanship. on completion was tested by hydraulic pressure with satisfactory results.

Survey Fee ... .. £ 5 : - : - } When applied for, MONTHLY A/c. 102  
 Travelling Expenses (if any) £ : : } When received, 102

W. A. Roberts  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute \_\_\_\_\_  
 Assigned \_\_\_\_\_

