

# REPORT ON BOILERS.

No. 10,176

Received at London Office 23 MAY 1929

7. 11. 13.

26. of writing Report 22<sup>nd</sup> May 1929 When handed in at Local Office 22<sup>nd</sup> May 1929 Port of Belfast

in Survey held at Belfast Date, First Survey 1<sup>st</sup> January Last Survey 20<sup>th</sup> May 1929

on the ULÉ (Number of Visits 15) Tons } Gross } Net }

ter Built at Belfast By whom built Harland & Wolff. Ltd. Yard No. 862 When built 1929

ines made at Belfast By whom made Harland & Wolff. Ltd. Engine No. 862 When made 1929

ers made at Belfast By whom made Harland & Wolff. Ltd. Boiler No. 862 When made 1929

inal Horse Power 228 Owners Large Shipping Co. Ltd. (A. Weir & Co. Mgrs.) Port belonging to London

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

Manufacturers of Steel David Colville & Sons Ltd. (Letter for Record 5.)

Heating Surface of Boilers 4360 sq ft Is forced draught fitted no Coal or Oil fired Oil

Description of Boilers Two single-ended, cylindrical, multitubular Working Pressure 180 lbs/sq in

Tested by hydraulic pressure to 320 lbs/sq in Date of test 22.4.29 No. of Certificate 932 Can each boiler be worked separately Yes

Number of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler Two spring-loaded high-lift

Area of each set of valves per boiler { per Rule  $\frac{2}{3}$  of  $13.77 \text{ sq in} = 9.18 \text{ sq in}$  as fitted 9.82 sq in Pressure to which they are adjusted 180 lb. Are they fitted with easing gear Yes

See Ref letter 30.5.29

Use of donkey boilers, state whether steam from main boilers can enter the donkey boiler

Smallest distance between boilers or uptakes and bunkers or woodwork Is oil fuel carried in the double bottom under boilers no

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

Smallest internal dia. of boilers 14'-6 1/2" Length 11'-0" Shell plates: Material Steel Tensile strength 28-32 Tons

Thickness 1 1/4" Are the shell plates welded or flanged no Description of riveting: circ. seams } end } inter. } double } ✓

Number of seams double d.b.s. Diameter of rivet holes in { circ. seams 1 5/16" Pitch of rivets { 3.63" } long. seams 1 5/16" } 9"

Percentage of strength of circ. end seams { plate 63.8 rivets 48.9 Percentage of strength of circ. intermediate seam { plate } rivets } ✓

Percentage of strength of longitudinal joint { plate 85.4 rivets 90.8 combined 88.96 Working pressure of shell by Rules 189.5 lbs/sq in

Thickness of butt straps { outer 1 5/16" inner 1 1/8" No. and Description of Furnaces in each Boiler Three Morrison

Material Steel Tensile strength 26-30 Tons Smallest outside diameter 41 5/8"

Length of plain part { top } bottom } Thickness of plates { crown } bottom } 9" Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 196 lbs/sq in

End plates in steam space: Material Steel Tensile strength 26-30 Tons Thickness 1 1/4" Pitch of stays 20 1/2" x 20 1/2"

Are stays secured Screwed into end plates, double nuts & washers Working pressure by Rules 185 lbs/sq in

End plates: Material { front } back } Tensile strength { 26-30 Tons } Thickness { 7/8" } 13/16"

Minimum pitch of stay tubes in nests 8 7/8" Pitch across wide water spaces 14 1/4" Working pressure { front } back } 187 lbs/sq in } 245 lbs/sq in

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

Centre 9'-1 3/4" Length as per Rule 33" Distance apart 10 1/4" No. and pitch of stays

Each three 8" Working pressure by Rules 199 lbs/sq in Combustion chamber plates: Material Steel

Tensile strength 26-30 lbs/sq in Thickness: Sides 3/4" Back 1/16" Top 3/4" Bottom 3/4"

Thickness of stays to ditto: Sides 9 3/4" x 8" Back 9 3/8" x 8 1/4" Top 10 1/4" x 8" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 212 lbs/sq in 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 13/16"

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

Working Pressure 220 lbs/sq in Main stays: Material Steel Tensile strength 28-32 Tons

At body of stay, meter } or } Over threads } 3 1/4" No. of threads per inch FIVE Area supported by each stay 420.25 sq in

Working pressure by Rules 186 lbs/sq in Screw stays: Material Steel Tensile strength 26-30 Tons

At turned off part, meter } or } Over threads } 1 5/8" 1 3/4" No. of threads per inch TEN Area supported by each stay 77.34 sq in



Working pressure by Rules 1974 Are the stays drilled at the outer ends no. Margin stays: Diameter <sup>At turned off part.</sup> 1 3/4" 1 7/8" 2"  
 No. of threads per inch TEN Area supported by each stay 93.3 sq" Working pressure by Rules 1944  
 Tubes: Material mild iron - External diameter <sup>Plain</sup> 3 1/4" Thickness <sup>No. 7 S.M.S.</sup> 1/4" 5/16" 3/8" No. of threads per inch TEN  
 Pitch of tubes 4 1/2" x 4 3/8" Working pressure by Rules plain 300 lb stay 306 lb Manhole compensation: Size of open shell plate 16" x 12" Section of compensating ring 36" x 32" x 1 1/8" double No. of rivets and diameter of rivet holes 28 - 1 1/8"  
 Outer row rivet pitch at ends 8" 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 <sup>Plate</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 of rivets in outer row in dome connection to shell \_\_\_\_\_

Type of Superheater \_\_\_\_\_ Manufacturers of <sup>Tubes</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 from the boiler \_\_\_\_\_  
 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 \_\_\_\_\_  
 Rules \_\_\_\_\_ Pressure to which the safety valves are adjusted \_\_\_\_\_ Hydraulic test pressure \_\_\_\_\_  
 tubes \_\_\_\_\_ castings \_\_\_\_\_ and after assembly in place \_\_\_\_\_ Are drain cocks or valves to free the superheater from water where necessary \_\_\_\_\_

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes

The foregoing is a correct description,  
 for HARLAND AND WOLFF, LIMITED, Manufacture

*W. Stebbins*

Dates of Survey while building <sup>During progress of work in shops - -</sup> 1929 Jan 1, 22 Feb 9, 13, 18, 22 Are the approved plans of boiler and superheater forwarded herewith 13.12.29  
<sup>During erection on board vessel - - -</sup> 26. Mar 13, 20 Apr 5, 15 May 1, 6, 7, 20 Total No. of visits 15  
 (If not state date of approval.)

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)  
 These boilers were constructed under Special Survey to an approved design. The materials & workmanship are good. They were subjected to hydraulic test in accordance with the rules, and were efficiently fastened on board the vessel. The safety valves were adjusted to the working pressure under steam.

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

*See Michy Report*

*R. Lee Ames*  
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute TUE, 28 MAY 1929  
 Assigned See Rpt attached