

# REPORT ON BOILERS.

No. 12000

THU. JUL 10 11

Received at London Office

Date of writing Report 1924 When handed in at Local Office 8-7-24 1924 Port of Middlesbrough

No. in Survey held at Stockton-on-Tees Date, First Survey 31st March Last Survey 26th June 1924

on the S.S. "HARTLEY" (Number of Visits 24) Tons {Gross Net

Master Built at South Bank By whom built Smith's Dock & Co Ltd Yard No. 797 When built

Engines made at South Bank By whom made Smith's Dock & Co Ltd Engine No. 263 When made

Boilers made at Stockton By whom made Messrs Blair & Co Ltd Boiler No. A100 When made 1924

Nominal Horse Power 231.14 Owners Port belonging to

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

Manufacturers of Steel The Steel Co of Scotland Ltd (Letter for Record (S))

Total Heating Surface of Boilers 3947 sq ft Is forced draught fitted No Coal or Oil fired Coal

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

Tested by hydraulic pressure to 320 Date of test 26-6-24 No. of Certificate 6374 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 5 1/2 sq ft No. and Description of safety valves to each boiler Direct spring loaded

Area of each set of valves per boiler {per Rule 12.9 as fitted 14.92} Pressure to which they are adjusted 135 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 2-0 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 No

Largest internal dia. of boilers 14-6 Length 10-6 Shell plates: Material S Tensile strength 28-32

Thickness 1 1/8 Are the shell plates welded or flanged No Description of riveting: circ. seams {end 2 R lap inter.

long. seams 2 R 3 R 5 rivets Diameter of rivet holes in {circ. seams 1 1/8 long. seams 1 1/4} Pitch of rivets {4 8-76

Percentage of strength of circ. end seams {plate 67.25 rivets 46.6} Percentage of strength of circ. intermediate seam {plate rivets

Percentage of strength of longitudinal joint {plate 85.71 rivets 91.00 combined 89.62} Working pressure of shell by Rules 180

Thickness of butt straps {outer 1 1/8 inner 1 1/8} No. and Description of Furnaces in each Boiler 3 Daington

Material S Tensile strength 26-30 Smallest outside diameter 4 1/8

Length of plain part {top bottom} Thickness of plates {crown 1 1/8 bottom 3/32} Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 185

End plates in steam space: Material S Tensile strength 26-30 Thickness 1 1/8 Pitch of stays 20 x 15 1/2

How are stays secured Nuts (10 1/2 x 1) Working pressure by Rules 180

Tube plates: Material {front back S} Tensile strength {26-30 26-30} Thickness {1 1/2 2 1/2

Mean pitch of stay tubes in nests 10 1/8 Pitch across wide water spaces 14 1/4 = 9 Working pressure {front 187 back 206

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

at centre 8 1/4 x 1 1/2 Length as per Rule 32 1/2 Distance apart 9 No. and pitch of stays

in each 30 8 1/2 Working pressure by Rules 194 Combustion chamber plates: Material S

Tensile strength 26-30 Thickness: Sides 2 1/32 Back 1 1/8 Top 2 1/32 Bottom 1

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

Working pressure by Rules 196 Front plate at bottom: Material S Tensile strength 26-30

Thickness 1 1/2 Lower back plate: Material S Tensile strength 26-30 Thickness 2 1/32

Pitch of stays at wide water space 14 1/4 = 9 Are stays fitted with nuts or riveted over nuts

Working Pressure 238 Main stays: Material S Tensile strength 28-32

Diameter {At body of stay 3 Over threads 3} No. of threads per inch 6 Area supported by each stay 355

Working pressure by Rules 263 Screw stays: Material S Tensile strength 26-30

Diameter {At turned off part 1 1/4 Over threads 1 1/4} No. of threads per inch 8 Area supported by each stay 83.25



Working pressure by Rules 215 Are the stays drilled at the outer ends no Margin stays: Diameter <sup>At turned off part</sup> 1 7/8 or <sup>Over threads</sup> 1 7/8  
 No. of threads per inch 8 Area supported by each stay 105.75 Working pressure by Rules 196  
 Tubes: Material S External diameter <sup>Plain</sup> 3 1/2 <sup>Stay</sup> 3 1/2 Thickness 1/16 No. of threads per inch 9  
 Pitch of tubes 4 1/2 = 4 1/2 Working pressure by Rules 210 Manhole compensation: Size of opening  
 shell plate 16 \* 12 Section of compensating ring 7 3/4 \* 1 3/4 No. of rivets and diameter of rivet holes 28 @ 1 1/4  
 Outer row rivet pitch at ends 8 3/4 Depth of flange if manhole flanged ✓ Steam Dome: Material iron  
 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  
 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,  
**BLAIR & CO., LIMITED**, A. P. Hamilton Manufacturer

Dates of Survey <sup>During progress of work in shops - -</sup> 1924, Mar. 31, Apr. 3, 9, 14, 16, 23, 25, 29, May, 1, 6, 8, 12, 14, 15, 20, 22, 26, 27, June, 3, 5, 12, 18, 20, 26. Are the approved plans of boiler and superheater forwarded herewith yes  
<sup>while building</sup> <sup>During erection on board vessel - - -</sup> \_\_\_\_\_ Total No. of visits 24 Return for duplicate

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been built under

special survey: are of good material and workmanship, and on completion were tested by hydraulic pressure with satisfactory results  
The boilers are to be fitted on board at this port

These boilers have now been fitted satisfactorily on board, examined under steam and safety valves adjusted  
Chas. W. Safford

It is submitted that  
 this vessel is eligible for  
**THE RECORD.**

Survey Fee ... .. £ 26-6-0 When applied for, 192  
 Travelling Expenses (if any) £ ✓ : : When received, 192

MONTHLY A/C  
 MIDDLESBROUGH

Wm Morrison & L. Deckett  
 Engineer Surveyors to Lloyd's Register of Shipping

Committee's Minute

FRI. 26 SEP 1924

Assigned



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 Foundation