

# REPORT ON BOILERS.

Std. No. 30561  
Rule No. 86508  
30 JAN 1931

Received at London Office -4 DEC 1930

Date of writing Report 192 When handed in at Local Office 25/11/1930 Port of Newcastle-on-Tyne

No. in Reg. Book. Survey held at Jarrow Date, First Survey 3 Oct. Last Survey 18 Nov 1930  
Std. 27 Jan 31

on the M.V. BRITISH SCIENCE

(Number of Visits 12.) Gross Tons Net

Master Built at Hebburn By whom built Palmers Co. Ltd. Yard No. 1003 When built 1930  
Engines made at Sunderland By whom made W. Doxford + Sons Ltd. Engine No. 182 When made 1930  
Boilers made at Jarrow By whom made Palmers Co. Ltd. Boiler No. 8027 When made 1930  
Nominal Horse Power Owners British Tanker Co. Ltd. Port belonging to

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

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

Total Heating Surface of Boilers 1365 sq ft Is forced draught fitted Yes Coal or Oil fired Oil

No. and Description of Boilers ONE SINGLE ENDED Working Pressure 150 LBS

Tested by hydraulic pressure to 275 LBS Date of test 31-10-30 No. of Certificate 520 Can each boiler be worked separately

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler Two Spring loaded

Area of each set of valves per boiler per Rule 12.47 as fitted 14.1372 223 DA Pressure to which they are adjusted 155 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 8-0 Is oil fuel carried in the double bottom under boilers Fitted two decks

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

Largest internal dia. of boilers 11' 4 7/16 Length 11' 6" Shell plates: Material STEEL Tensile strength 29-33 TONS

Thickness 25/32 Are the shell plates welded or flanged No Description of riveting: circ. seams D.R.L

long. seams TRDBS Diameter of rivet holes in circ. seams 1/8 long. seams 7/8 Pitch of rivets 3-26

Percentage of strength of circ. end seams plate 69.3 rivets 48.9 Percentage of strength of circ. intermediate seam plate 86.2 rivets 90.3

Percentage of strength of longitudinal joint plate 86.2 rivets 90.3 combined 90.45 Working pressure of shell by Rules 153 LBS

Thickness of butt straps outer 23/32 inner 19/32 No. and Description of Furnaces in each Boiler TWO DEIGHTON

Material STEEL Tensile strength 26-30 TONS Smallest outside diameter 2'-8"

Length of plain part top 10 1/2 bottom 10 1/2 Thickness of plates crown 3/8 bottom 3/8 Description of longitudinal joint WELD

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 165 LBS

End plates in steam space: Material STEEL Tensile strength 26-30 TONS Thickness 15/16 Pitch of stays 16" x 17"

How are stays secured DOUBLE NUTS & WASHERS Working pressure by Rules 151 LBS

Tube plates: Material front STEEL back Tensile strength 26-30 TONS Thickness 27/32 25/32

Mean pitch of stay tubes in nests 9.375 Pitch across wide water spaces 1'-2" Working pressure front 154 LBS back 155 LBS

Girders to combustion chamber tops: Material STEEL Tensile strength 29-33 TONS Depth and thickness of girder

at centre 7 1/2" x 1" Length as per Rule 2'-4 19/32 Distance apart 8 1/4 No. and pitch of stays

in each 2 @ 10" Working pressure by Rules 158 LBS Combustion chamber plates: Material STEEL

Tensile strength 26-30 TONS Thickness: Sides 5/8 Back 23/32 Top 5/8 Bottom 5/8

Pitch of stays to ditto: Sides 8 1/4" x 10" Back 7" x 8" Top 8 1/4" x 10" Are stays fitted with nuts or riveted over BOTH

Working pressure by Rules 153 LBS Front plate at bottom: Material STEEL Tensile strength 26-30 TONS

Thickness 27/32 Lower back plate: Material STEEL Tensile strength 26-30 TONS Thickness 29/32

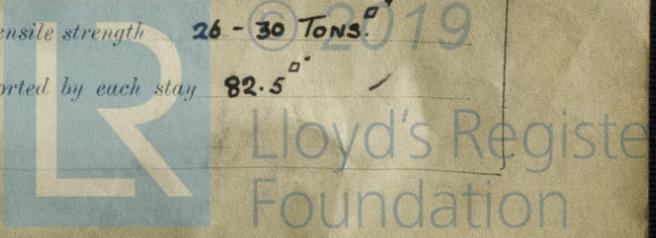
Pitch of stays at wide water space 14" x 9.5" Are stays fitted with nuts or riveted over NUTS

Working Pressure 156 LBS Main stays: Material STEEL Tensile strength 28-32 TONS

Diameter At body of stay, or Over threads 2 1/2 No. of threads per inch 6 Area supported by each stay 272

Working pressure by Rules 163 LBS Screw stays: Material STEEL Tensile strength 26-30 TONS

Diameter At turned off part, or Over threads 1 1/2 No. of threads per inch 9 Area supported by each stay 82.5



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Working pressure by Rules 152 LBS. <sup>□</sup> Are the stays drilled at the outer ends No Margin stays: Diameter <sup>At turned off part,</sup> <sub>or</sub> Over threads  $1\frac{5}{8}$ ,  $1\frac{3}{4}$ ,  $1\frac{7}{8}$

No. of threads per inch 9 Area supported by each stay 92 <sup>□</sup> Working pressure by Rules 165 LBS. <sup>□</sup>

Tubes: Material W. IRON External diameter <sup>Plain</sup>  $2\frac{1}{2}$ " <sup>Stay</sup>  $2\frac{1}{2}$ " Thickness <sup>10 x 9</sup>  $\frac{3}{8}$ ,  $\frac{5}{16}$  No. of threads per inch 9

Pitch of tubes  $3\frac{3}{4}$ " x  $3\frac{3}{4}$ " Working pressure by Rules 175 LBS. <sup>□</sup> Manhole compensation: Size of opening in shell plate 20" x 16" Section of compensating ring 2' 8" x 2' 9" x  $\frac{25}{32}$ " No. of rivets and diameter of rivet holes 40 @  $1\frac{1}{16}$ "

Outer row rivet pitch at ends  $7\frac{3}{16}$ " Depth of flange if manhole flanged 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> <sub>Rivets</sub>

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> <sub>Steel castings</sub>

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 <sup>castings</sup> 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 22 inclusive for boilers been complied with YES

The foregoing is a correct description, *Falmers Superheating & Engine Co., Ltd.* Manufacturer. *H. Brown*

Dates of Survey <sup>1930</sup> During progress of work in shops -- Oct. 3, 12, 14, 17, 20, 21, 23, 31, Nov. 5, 6, 10, 18. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) *Manager, Engine Works* Yes

while building During erection on board vessel --- Total No. of visits 12.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been built under Special Survey, the materials and workmanship are good. This boiler has been satisfactorily fitted in the vessel & the safety valves adjusted under steam for notation see machinery report.

Survey Fee ... .. £ 9 : 2 : 0 When applied for, 192 <sup>- 3 DEC 1930</sup>

Travelling Expenses (if any) £ : : When received, 14/2/31 *192*

*Thomas Rupert Harbottle*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute THE 10 FEB 1931

Assigned See other Nwc J.C. Rpt.

