

## REPORT ON BOILERS.

No. 29710

Date of writing Report

192

When handed in at Local Office

27 APR 1928

Received at London Office

28 APR 1928

Port of Sunderland.

No. in Reg. Book. Survey held at Sunderland

Date, First Survey

Last Survey

20<sup>th</sup> Apr 1928

40054 on the S.S. "BACTRIA"

(Number of Visits)

Gross 2402

Net 1209

Master Built at Sunderland By whom built J. L. Thompson &amp; Sons Ltd. Yard No. 561 When built 1928

Engines made at Sunderland By whom made John Dickinson &amp; Sons Ltd. Engine No. 892 When made 1928

Boilers made at -do- By whom made -do- Boiler No. 892 When made 1928

Nominal Horse Power 403 Owners America-levant line Ltd. Port belonging to London

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

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

Total Heating Surface of Boilers 5944 sq ft Is forced draught fitted Yes Coal or Oil fired Coal

No. and Description of Boilers Two-Single Ended Marine Type-Corrugated Furnaces Working Pressure 180 lbs

Tested by hydraulic pressure to 320 lbs Date of test 10-3-28 No. of Certificate 3982 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 74.5 sq ft No. and Description of safety valves to each boiler Two- Direct Spring Loaded (Patent High Lift)

Area of each set of valves per boiler <sup>per Rule</sup> <sub>as fitted</sub> 9.816 sq ft Pressure to which they are adjusted 185 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 ~~on uptakes~~ and bunkers ~~on woodwork~~ 3'-6" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 2'-0" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 16'-3 5/16" Length 11'-9" (full) Shell plates: Material Steel Tensile strength 28 to 32 tons

Thickness 1 1/32" Are the shell plates welded or flanged No Description of riveting: circ. seams <sup>end</sup> D.R. Laplong. seams T.R.D.B.S. Diameter of rivet holes in <sup>circ. seams</sup> <sub>long. seams</sub> 1 7/16" Pitch of rivets <sup>end</sup> 3 7/8" <sub>inter.</sub> 9 1/16"Percentage of strength of circ. end seams <sup>plate</sup> 63.0 <sub>rivets</sub> 51.2 Percentage of strength of circ. intermediate seam <sup>plate</sup> <sub>rivets</sub> —Percentage of strength of longitudinal joint <sup>plate</sup> 85.2 <sub>rivets</sub> 96.0 <sub>combined</sub> 89.6 Working pressure of shell by Rules 182 lbsThickness of butt straps <sup>outer</sup> 1 1/16" <sub>inner</sub> 1 3/16" No. and Description of Furnaces in each Boiler Four-Corrugated- Deighton Type

Material Steel Tensile strength 26 to 30 tons Smallest outside diameter 3'-5 13/16"

Length of plain part <sup>top</sup> — <sub>bottom</sub> — Thickness of plates <sup>crown</sup> 1 1/32" <sub>bottom</sub> 1 7/32" Description of longitudinal joint Welded

Dimensions of stiffening rings on furnace or c.c. bottom — Working pressure of furnace by Rules 184 lbs

End plates in steam space: Material Steel Tensile strength 26 to 30 tons Thickness 1 5/32" Pitch of stays 18" x 21"

How are stays secured Double Nuts &amp; Washers Working pressure by Rules 185 lbs

Tube plates: Material <sup>front</sup> Steel <sub>back</sub> Tensile strength 26 to 30 tons Thickness <sup>front</sup> 7/8" <sub>back</sub> 7/8"Mean pitch of stay tubes in nests 9 7/8" Pitch across wide water spaces 12 1/2" Working pressure <sup>front</sup> 232 lbs <sub>back</sub> 284 lbs (W.W. Space)

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

at centre 6 3/4" x 2" Length as per Rule 31 7/16" Distance apart 8' 5 3/4" No. and pitch of stays

in each 2 x 10" Working pressure by Rules 182 lbs Combustion chamber plates: Material Steel

Tensile strength 26 to 30 tons Thickness: Sides 1 1/16" Centre 9 1/2" x 9" Back 1 1/16" Top 1 1/16" Bottom 1 1/16"

Pitch of stays to ditto: Sides 9" x 10" Back 9 1/2" x 9 1/2" Top 10" x 8" Are stays fitted with nuts or riveted over Fitted with nuts (inside only)

Working pressure by Rules Sides 182.5 lbs Backs 183 lbs Tops 184 lbs Front plate at bottom: Material Steel Tensile strength 26 to 30 tons

Thickness 7/8" Lower back plate: Material Steel Tensile strength 26 to 30 tons Thickness 7/8"

Pitch of stays at wide water space 12 1/4" x 9 1/2" Are stays fitted with nuts or riveted over Fitted with nuts (inside only)

Working Pressure 230 lbs Main stays: Material Steel Tensile strength 28 to 32 tons

Diameter <sup>At body of stay,</sup> 3 1/8" <sub>or over threads</sub> No. of threads per inch 6 Area supported by each stay 348 sq in

Working pressure by Rules 194 lbs Screw stays: Material Steel Tensile strength 26 to 30 tons

Diameter <sup>At turned off part,</sup> 1 3/4" <sub>or over threads</sub> No. of threads per inch 9 Area supported by each stay



Sides 201.8 lbs sq  
Backs 201.2 lbs sq  
Tops 201.5 lbs sq  
Working pressure by Rules 182.5 lbs sq  
No. of threads per inch 9  
Area supported by each stay 117 sq in  
Margin stays: Diameter { At turned off part, 1 7/8" or Over threads  
Tubes: Material Wrought Iron External diameter { Plain 2 1/2" Stay 2 1/2" Thickness { 8 W.G. 5/16" No. of threads per inch 9  
Pitch of tubes 3 3/4" x 3 3/4" Working pressure by Rules Stay 194 lbs sq Plain 300 lbs sq  
Manhole compensation: Size of opening 16" x 12" Section of compensating ring No. of rivets and diameter of rivet holes  
Outer row rivet pitch at ends Depth of flange if manhole flanged 3 3/4" Steam Dome: Material  
Tensile strength Thickness of shell Description of longitudinal joint  
Diameter of rivet holes Pitch of rivets Percentage of strength of joint { Plate Rivets  
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  
Number of elements Material of tubes Manufacturers of Tubes Steel castings  
Material of headers Tensile strength Thickness Internal diameter and thickness of tubes  
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.

For John Blekineen & Sons, Ltd  
The foregoing is a correct description,  
J. H. Hume Manufacturer

Dates of Survey { During progress of work in shops - - - Please see Machinery Report  
while building { During erection on board vessel - - -  
Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)  
Total No. of visits

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)  
The materials and workmanship are good.  
The Boilers have been constructed under Special Survey, and satisfactorily fitted in the vessel.  
For notation see Machinery Report.

Survey Fee ... £ Please see Machinery Report  
Travelling Expenses (if any) £ When applied for, 192  
When received, 192

A. T. Griffith  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 4 MAY 1928

Assigned La J. H. Hume attached