

REPORT ON BOILERS.

Sld. No. 32139
Mat. No. 15976

APR 1937

Received at London Office

Date of writing Report 8.4.37. When handed in at Local Office 8.4.37. Port of MIDDLESBROUGH.

No. in Survey held at STOCKTON. Date, First Survey 21 Dec/36 Last Survey 6.4.1937.

on the S.S. BIDDLESTONE (Number of Visits 7) Gross 4910 Tons Net 2953

Built at Sunderland By whom built Short Brothers Yard No. 450 When built 1934.

Engines made at Newcastle By whom made White Marine Engineering Co. Engine No. 110 When made

Boilers made at Stockton By whom made Stockton Chemical Eng. Co. Riley, Doncaster No. 627 When made 1937.

Original Horse Power Owners The White Shipping Co. Port belonging to Newcastle

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Appleby, Frodingham Steel Company Ltd. (Letter for Record 5.)

Total Heating Surface of Boilers 1486 sq ft Is forced draught fitted no. Coal or Oil fired Coal Working Pressure 240 lbs.

Valves tested by hydraulic pressure to 410 lbs. Date of test 6.4.37 No. of Certificate 6909 Can each boiler be worked separately

Area of Firegrate in each Boiler 42.75 sq ft No. and Description of safety valves to each boiler Two Cochran Improved High Lift. Pressure to which they are adjusted 240 Are they fitted with easing gear ylo.

Smallest distance between boilers or uptakes and bunkers or woodwork (Between main boilers) 2'-6" 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 ylo.

Largest internal dia. of boilers 12'-6" Length 10'-6" Shell plates: Material steel Tensile strength 26/30.

Thickness 1 3/32 Are the shell plates welded or flanged no. Description of riveting: circ. seams 3 3/4 end inter. 3 3/4

Long. seams T.R.D.B.S. (5 welds) Diameter of rivet holes in circ. seams 1 1/32 long. seams 1 1/16 Pitch of rivets 9

Percentage of strength of circ. end seams plate 64.1 rivets 45.4 Percentage of strength of circ. intermediate seam plate 85.4 rivets 84.2 Working pressure of shell by Rules 240 lbs.

Percentage of strength of longitudinal joint plate 87.6 rivets 87.6 combined 87.6

Thickness of butt straps outer 3 1/32 inner 1 3/32 No. and Description of Furnaces in each Boiler 3 c.f. Tensile strength 26/30 Smallest outside diameter 2'-11 1/2"

Length of plain part top bottom Thickness of plates crown 1 9/32 bottom 1 3/32 Description of longitudinal joint weld.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 244 lbs.

End plates in steam space: Material steel Tensile strength 26/30 Thickness 1 1/16 Pitch of stays 15" x 18" Working pressure by Rules 240 lbs.

How are stays secured D.N.s Working pressure by Rules 240 lbs. Thickness 1 1/32

Lean pitch of stay tubes in nests 8 1/2" Pitch across wide water spaces 14" x 4 1/2" Working pressure front 283 lbs. back 241 lbs.

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

Distance apart 8 1/2" No. and pitch of stays

Working pressure by Rules 242 lbs. Combustion chamber plates: Material steel Tensile strength 26/30 Thickness: Sides 1/16 Back 1/16 Top 1/16 Bottom 7/8

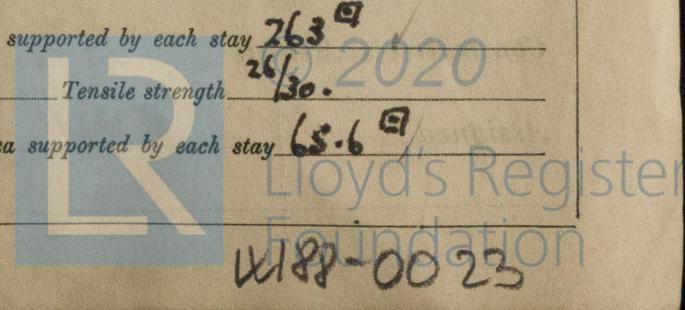
Pitch of stays to ditto: Sides 8 1/2" x 8" Back 7 1/2" x 7 1/2" Top 8" x 8 1/2" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 294 lbs. Front plate at bottom: Material steel Tensile strength 26/30 Thickness 1" Lower back plate: Material steel Tensile strength 26/30 Thickness 1"

Pitch of stays at wide water space 14 1/2" x 7 1/2" Are stays fitted with nuts or riveted over nuts. Working Pressure 323 lbs. Main stays: Material steel Tensile strength 28/32

Diameter At body of stay or Over threads 3" No. of threads per inch 6. Area supported by each stay 263 sq in Working pressure by Rules 25 lbs. Screw stays: Material steel Tensile strength 26/30

Diameter At turned off part or Over threads 1 3/4" No. of threads per inch 9. Area supported by each stay 65.6 sq in



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Working pressure by Rules 265 lbs. Are the stays drilled at the outer ends no. Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \frac{17}{8}$ "

No. of threads per inch 9. Area supported by each stay 78.3 Working pressure by Rules 272 lbs.

Tubes: Material lapwelded wrought iron External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \begin{array}{l} 3\frac{1}{4} \text{ to } 3\frac{3}{4} \\ 3\frac{1}{4} \text{ to } 3\frac{1}{2} \end{array}$ Thickness $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \begin{array}{l} 7/16 \\ 5/16 \end{array}$ No. of threads per inch 9.

Pitch of tubes 4 $\frac{3}{8}$ x 4 $\frac{1}{4}$ Working pressure by Rules 280 lbs s. 246 lbs. Manhole compensation: Size of opening shell plate 20 x 16 Section of compensating ring 9 $\frac{1}{2}$ x 1 $\frac{1}{4}$ No. of rivets and diameter of rivet holes 48-1 $\frac{1}{4}$

Outer row rivet pitch at ends 9" 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 $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \begin{array}{l} \text{ } \\ \text{ } \end{array}$

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 $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right. \begin{array}{l} \text{ } \\ \text{ } \end{array}$

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

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 22 inclusive for boilers been complied with

For and on behalf of The Institution of Engineers and Shipbuilders' Association, Manufacture

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops} \end{array} \right. \begin{array}{l} \text{1936 Dec 21-28-31 1937 Jan 7-19-22} \\ \text{28 Feb 3-9-17-25 Mar 2-10-15-18-31 Apr 6} \end{array}$ Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

$\left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel} \end{array} \right. \begin{array}{l} \text{ } \\ \text{ } \end{array}$ Total No. of visits 17

Is this Boiler a duplicate of a previous case no. If so, state Vessel's name and Report No.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

The materials and workmanship are good.

This boiler has been built under special survey and in accordance with the Rules and approved Plans. It will be fitted aboard at Newcastle.

This boiler has been securely fixed on board the vessel, examined under steam, safety valves adjusted to working pressure & accumulation test carried out satisfactorily.

In recommendation please see Memo Rpt. J. J. Fraser.

Survey Fee 9-18-0 When applied for 8-4-1937

Travelling Expenses (if any) £ When received 25-6-1937 from

M. M. A.
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute TUE 20 JUL 1937

Assigned See Sld 22139

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