

# REPORT ON BOILERS.

No. 15788

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Date of writing Report 7-10-1929 When handed in at Local Office 7-10-1929 Port of Aberdeen

No. in Reg. Book. Survey held at Aberdeen Date, First Survey 5-4-29. Last Survey 26-9-1929  
on the S.S. "FIRECREST." (Number of Visits 15) Gross 537.86 Tons Net 259.32.

Master Built at Aberdeen By whom built J. Lewis & Sons Ltd. Yard No. 108. When built 1929  
Engines made at Aberdeen By whom made J. Lewis & Sons Ltd. Engine No. 189 When made 1929  
Boilers made at Aberdeen By whom made J. Lewis & Sons Ltd. Boiler No. 152 When made 1929.  
Nominal Horse Power 82. Owners R & W. Paul. Port belonging to Ipswich.

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

Manufacturers of Steel William Beardmore & Co. Ltd. (Letter for Record S.)

Total Heating Surface of Boilers 1484 sq. ft. Is forced draught fitted no. Coal or Oil fired Coal.

No. and Description of Boilers One S.E. Main. 15B. Working Pressure 200 lb. sq.

Tested by hydraulic pressure to 350 lb. Date of test 13-8-29. No. of Certificate 1074. Can each boiler be worked separately ✓

Area of Firegrate in each Boiler 40 sq. ft. No. and Description of safety valves to each boiler 2 spring loaded.

Area of each set of valves per boiler (per Rule 8.63 sq. as fitted 9.820 sq.) Pressure to which they are adjusted 200 lb. 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 18" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating no tank Is the bottom of the boiler insulated no

Largest internal dia. of boilers 13'-0" Length 10'-0" Shell plates: Material Steel Tensile strength 28/32 tons.

Thickness 1 3/16" Are the shell plates welded or flanged no Description of riveting: circ. seams (end D.R. inter. 3.45")

long. seams T.R.D.B.S. Diameter of rivet holes in (circ. seams 1 3/16" long. seams 1 3/16" Pitch of rivets (plate 8 7/8")

Percentage of strength of circ. end seams (plate 65.6 rivets 44.4) Percentage of strength of circ. intermediate seam (plate 86. rivets 85.3)

Percentage of strength of longitudinal joint (plate 86. rivets 85.3 combined 88.9) Working pressure of shell by Rules 200.5 lb.

Thickness of butt straps (outer 29/32 inner 1 1/32) No. and Description of Furnaces in each Boiler Two Deighton. 2cf.

Material Steel Tensile strength 26/30 tons Smallest outside diameter 46 3/8"

Length of plain part (top bottom) Thickness of plates (crown 1 1/16" bottom 1 1/16" Description of longitudinal joint welded.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 217 lb. sq.

End plates in steam space: Material Steel Tensile strength 26/30 tons. Thickness 1 1/16" Pitch of stays 16 3/4" x 14 3/4"

How are stays secured Double nuts. Working pressure by Rules 201 lb.

Tube plates: Material (front back) Steel Tensile strength } 26/30 tons. Thickness (15/16" 13/16")

Mean pitch of stay tubes in nests 10.96" Pitch across wide water spaces 14 1/2" x 9 1/2" Working pressure (front 201 lb. back 200 lb.)

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

at centre 9 1/8" x 1 1/8" Length as per Rule 31.5" Distance apart 8" No. and pitch of stays

in each 2 @ 9 7/8" Working pressure by Rules 204 lb. Combustion chamber plates: Material Steel.

Tensile strength 26/30 tons Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 1 1/16" (See 3/4 add'l note)

Pitch of stays to ditto: Sides 8 x 9 7/8" Back 8 x 9 1/2" Top 8 x 9 7/8" Are stays fitted with nuts or riveted over nuts.

Working pressure by Rules 204.5 lb. Front plate at bottom: Material Steel Tensile strength 26/30 tons.

Thickness 15/16" Lower back plate: Material Steel Tensile strength 26/30 Thickness 13/16"

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

Working Pressure 204 lb. Main stays: Material Steel Tensile strength 28/32 tons.

Diameter (At body of stay, or Over threads) 2 5/8" dia. No. of threads per inch 6 Area supported by each stay 249 sq.

Working pressure by Rules 201 lb. Screw stays: Material Steel. Tensile strength 26/30 tons.

Diameter (At turned off part, or Over threads) 1 5/8" + 1 3/4" No. of threads per inch 9 Area supported by each stay 76 + 79 sq.

Working pressure by Rules  $200+230$  <sup>lb</sup> Are the stays drilled at the outer ends *no* Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. 1\frac{3}{4}$ "

No. of threads per inch *9* Area supported by each stay  $90.75$  " Working pressure by Rules  $200$  <sup>lb</sup>.

Tubes; Material *Iron.* External diameter  $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stays} \end{array} \right. 3\frac{1}{2}$ " Thickness  $\left\{ \begin{array}{l} \text{8 W.G.} \\ \frac{1}{4} + \frac{5}{16} \end{array} \right.$  No. of threads per inch *9*

Pitch of tubes  $4\frac{3}{4}$ " Working pressure by Rules  $215$  <sup>lb</sup>. Manhole compensation: Size of opening in shell plate  $15" \times 19"$  Section of compensating ring  $29" \times 33" \times 1\frac{1}{16}"$  No. of rivets and diameter of rivet holes  $40 @ 1\frac{3}{16}"$

Outer row rivet pitch at ends  $8\frac{7}{16}"$  Depth of flange if manhole flanged  $3"$  Steam Dome: Material *-*

Tensile strength Thickness of shell Description of longitudinal joint

Diameter of rivet holes Pitch of rivets Percentage of strength of joint  $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$

Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays

How connected to shell Inner radius of crown Working pressure by Rules

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

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,  
 FOR JOHN LEWIS & SONS, LTD. Manufacturer

Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right. \left\{ \begin{array}{l} \text{1929. Apr. 5-12-30 May 7-13 June 6-12-19.} \\ \text{July 1-4-10-24 Aug. 13.} \\ \text{During erection on board vessel} \\ \text{---} \end{array} \right. \text{Sep. 9-26.}$

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

Total No. of visits  $15$ .

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

This boiler has been constructed under special survey in accordance with the approved plan and the Rules of this Society. The materials & workmanship are good. The boiler has been satisfactorily fitted on board the vessel, the safety valves adjusted under steam and tried for accumulation, and the boiler examined under working conditions and found satisfactory.

Survey Fee ... .. £ *See Report* When applied for, 192

Travelling Expenses (if any) £ *on Machinery* When received, 192

*P. Fitzgerald, West Captain*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 15 OCT 1929*

Assigned *See Report attached*