

REPORT ON BOILERS.

No. 16180

Received at London Office 12 JUL 1930

Date of writing Report 11-7-1930 When handed in at Local Office 11-7-1930 Port of Aberdeen

No. in Reg. Book 571 Survey held at Aberdeen Date, First Survey 28-12-29 Last Survey 7-7-1930

on the steam trawler "FRIARAGE". (Number of Visits 18) Gross 215.33 Tons Net 93.53

Master _____ Built at Aberdeen By whom built J. Lewis & Sons Ltd Yard No. 119 When built 1930

Engines made at Aberdeen By whom made J. Lewis & Sons Ltd Engine No. 197 When made 1930

Boilers made at Aberdeen By whom made J. Lewis & Sons Ltd Boiler No. 163 When made 1930

Nominal Horse Power 90 Owners J. Graham & Sons Ltd Port belonging to Hartlepool

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel David Colville & Sons Ltd (Letter for Record S)

Total Heating Surface of Boilers 1779 sq. ft. Is forced draught fitted no Coal or Oil fired coal

No. and Description of Boilers One S.E. Main Working Pressure 180 lb.

Tested by hydraulic pressure to 320 Date of test 9-6-30 No. of Certificate 1089 Can each boiler be worked separately ✓

Area of Firegrate in each Boiler 52.25 sq. ft. No. and Description of safety valves to each boiler 2 spring loaded

Area of each set of valves per boiler $\left\{ \begin{array}{l} \text{per Rule} \\ \text{as fitted} \end{array} \right. \left\{ \begin{array}{l} 11.4 \text{ sq. ft.} \\ 11.88 \text{ sq. ft.} \end{array} \right.$ Pressure to which they are adjusted 180 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 8" 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'-3" Length 10'-6" Shell plates: Material steel Tensile strength 29/33 tons

Thickness $\frac{1}{16}$ " Are the shell plates welded or flanged no Description of riveting: circ. seams $\left\{ \begin{array}{l} \text{end} \\ \text{inter.} \end{array} \right. \left\{ \begin{array}{l} \text{D.R.} \\ \text{✓} \end{array} \right.$

long. seams T. R. D. B. S. Diameter of rivet holes in $\left\{ \begin{array}{l} \text{circ. seams} \\ \text{long. seams} \end{array} \right. \left\{ \begin{array}{l} \frac{1}{8}" \\ \frac{1}{8}" \end{array} \right.$ Pitch of rivets $\left\{ \begin{array}{l} 3.469" \\ 8" \end{array} \right.$

Percentage of strength of circ. end seams $\left\{ \begin{array}{l} \text{plate} \\ \text{rivets} \end{array} \right. \left\{ \begin{array}{l} 67.6 \\ 42.7 \end{array} \right.$ Percentage of strength of circ. intermediate seam $\left\{ \begin{array}{l} \text{plate} \\ \text{rivets} \end{array} \right. \left\{ \begin{array}{l} 86 \\ 87.1 \end{array} \right.$

Percentage of strength of longitudinal joint $\left\{ \begin{array}{l} \text{plate} \\ \text{rivets} \\ \text{combined} \end{array} \right. \left\{ \begin{array}{l} 86 \\ 87.1 \\ 89.28 \end{array} \right.$ Working pressure of shell by Rules 182.8 lb.

Thickness of butt straps $\left\{ \begin{array}{l} \text{outer} \\ \text{inner} \end{array} \right. \left\{ \begin{array}{l} \frac{13}{16}" \\ \frac{15}{16}" \end{array} \right.$ No. and Description of Furnaces in each Boiler 3 plain

Material Steel Tensile strength 26/30 tons Smallest outside diameter 39 $\frac{1}{2}$ "

Length of plain part $\left\{ \begin{array}{l} \text{top} \\ \text{bottom} \end{array} \right. \left\{ \begin{array}{l} 80" \\ 85 \frac{9}{16}" \end{array} \right.$ Thickness of plates $\left\{ \begin{array}{l} \text{crown} \\ \text{bottom} \end{array} \right. \left\{ \begin{array}{l} \frac{3}{4}" \\ \frac{3}{4}" \end{array} \right.$ Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.e. bottom ✓ Working pressure of furnace by Rules 180 lb.

End plates in steam space: Material Steel Tensile strength 26/30 tons Thickness $\frac{1}{32}$ " Pitch of stays $17 \frac{1}{8} \times 15 \frac{3}{4}$ "

How are stays secured Double nuts Working pressure by Rules 181 lb.

Tube plates: Material $\left\{ \begin{array}{l} \text{front} \\ \text{back} \end{array} \right. \left\{ \begin{array}{l} \text{Steel} \\ \text{Steel} \end{array} \right.$ Tensile strength $\left\{ \begin{array}{l} 26/30 \text{ tons} \\ 26/30 \text{ tons} \end{array} \right.$ Thickness $\left\{ \begin{array}{l} \frac{15}{16}" \\ \frac{3}{4}" \end{array} \right.$

Mean pitch of stay tubes in nests 10-39" Pitch across wide water spaces $14 \frac{1}{4} \times 9"$ Working pressure $\left\{ \begin{array}{l} \text{front} \\ \text{back} \end{array} \right. \left\{ \begin{array}{l} 186.3 \text{ lb.} \\ 193.5 \text{ lb.} \end{array} \right.$

Girders to combustion chamber tops: Material Steel Tensile strength 29/33 tons Depth and thickness of girder at centre $8 \frac{1}{2} \times 1 \frac{1}{8}$ " Length as per Rule $30 \frac{19}{32}$ " Distance apart 8" No. and pitch of stays in each 2 @ 8" Working pressure by Rules 181 lb. Combustion chamber plates: Material Steel

Tensile strength 26/30 tons Thickness: Sides $\frac{21}{32}$ " Back $\frac{21}{32}$ " Top $\frac{21}{32}$ " Bottom $\frac{1}{32}$ "

Pitch of stays to ditto: Sides $8 \times 10 \frac{1}{8}$ " Back $7 \frac{3}{4} \times 10 \frac{1}{4}$ " Top $8 \times 8"$ Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 180 lb. Front plate at bottom: Material Steel Tensile strength 26/30 tons

Thickness $\frac{15}{16}"$ Lower back plate: Material Steel Tensile strength 26/30 tons Thickness $\frac{13}{16}"$

Pitch of stays at wide water space $14 \times 9 \frac{1}{4}"$ Are stays fitted with nuts or riveted over nuts

Working Pressure 182.8 lb. Main stays: Material Steel Tensile strength 28/32 tons

Diameter $\left\{ \begin{array}{l} \text{At body of stay,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \left\{ \begin{array}{l} 2 \frac{5}{8}" \\ 2 \frac{5}{8}" \end{array} \right.$ No. of threads per inch 6 Area supported by each stay 269.7 sq. in.

Working pressure by Rules 184 lb. Screw stays: Material Steel Tensile strength 26/30 tons

Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \left\{ \begin{array}{l} 1 \frac{5}{8}" \\ 1 \frac{5}{8}" \end{array} \right.$ No. of threads per inch 9 Area supported by each stay 81 sq. in.

Working pressure by Rules 187.4 lb. Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 1 3/4" Over threads 1 3/4" Working pressure by Rules 181 lb.

No. of threads per inch 9 Area supported by each stay 100.5 sq" Tubes: Material Iron External diameter { Plain 3 1/4" Stay 3 1/4" Thickness { 8 W.G. 1/4 + 5/16" No. of threads per inch 9

Pitch of tubes 4 1/2" Working pressure by Rules 230 lb. Manhole compensation: Size of opening in shell plate 19" x 15" Section of compensating ring 33" x 29" x 1 1/16" No. of rivets and diameter of rivet holes 40 @ 1 1/8"

Outer row rivet pitch at ends 8" 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 { 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 _____ Internal diameter and thickness of tubes _____

Material of headers _____ Tensile strength _____ Thickness _____ Can the superheater be shut off and the boiler be worked separately _____

Area of each safety valve _____ Is a safety valve fitted to every part of the superheater which can be shut off from the boiler _____

Rules _____ Are the safety valves fitted with easing gear _____ Working pressure as per _____

tubes _____, castings _____ Pressure to which the safety valves are adjusted _____ Hydraulic test pressure: _____

to free the superheater from water where necessary _____ and after assembly in place _____ Are drain cocks or valves fitted _____

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with yes.

FOR JOHN LEWIS & SONS, LTD.,
The foregoing is a correct description.

Dates of Survey { During progress of work in shops - - - 1929. Dec. 28. 1930. Jan. 24. 21. Feb. 7. 14. 19. 24. 15. See the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
while building { During erection on board vessel - - - March 5. 11. April 5. 17. 25. May 2. 8. 27. June 9. June 23. July 7. Total No. of visits 18.

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 & the Rules of this Society. The materials and 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.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 18 JUL 1930

Assigned

See other Rpt.
Abn. 16180



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Foundation