

54 Rpt. 5a.

REPORT ON BOILERS.

No. 17877.

Received at London Office 3 JUL 1945

Date of writing Report 27th June 1945 When handed in at Local Office 2nd July 1945 Port of Middlesbrough.

No. in Survey held at Stockton-on-Tees. Date, First Survey 13th March Last Survey 20th June 1945

"EMPIRE SENLAC"

(Number of Visits 12) Gross Tons Net

Built at Sunderland By whom built H. Shapson & Sons L^{td} Yard No. 642 When built 1945

Engines made at Sunderland By whom made Wm Telford. Engine No 245 When made 1945

Boilers made at Stockton-on-Tees By whom made Maitland, P. S. & Rley Boilers L^{td} Boiler No. 1892 When made 1945.

Nominal Horse Power Owners Ministry of War Transport. Port belonging to Sunderland.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Appley Fordyham Steel C^o L^{td} (Letter for Record 5. ✓)

Total Heating Surface of Boilers 1152 sq ft Is forced draught fitted no Coal or Oil fired oil

No. and Description of Boilers 1. SE. Marine Working Pressure 150 lb. ✓

Tested by hydraulic pressure to 275 lb. Date of test 2/6/45 No. of Certificate 7146 Can each boiler be worked separately yes ✓

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 1. 2" H.L. D.S. Spring

Area of each set of valves per boiler {per Rule 8.12 for Ordnance 5-7 cfm H.L. as fitted 6.28 sq ft Pressure to which they are adjusted 150 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 — Is oil fuel carried in the double bottom under boilers —

Smallest distance between shell of boiler and tank top plating — Is the bottom of the boiler insulated yes ✓

Largest internal dia. of boilers 10'-9" ✓ Length 10'-6" ✓ Shell plates: Material Steel ✓ Tensile strength 28-32 ✓

Thickness 25/32" ✓ Are the shell plates welded or flanged no. Description of riveting: circ. seams {end DR.L. inter. 2.98" ✓

Long. seams TR. D.B.S. Diameter of rivet holes in {circ. seams 15/16" ✓ long. seams 15/16" ✓ Pitch of rivets { 6 1/4" ✓

Percentage of strength of circ. end seams {plate 68.5% ✓ rivets 48.7% ✓ Percentage of strength of circ. intermediate seam {plate — rivets —

Percentage of strength of longitudinal joint {plate 85% ✓ rivets 108.9% ✓ combined —

Thickness of butt straps {outer 19/32" ✓ inner 23/32" ✓ No. and Description of Furnaces in each Boiler 2 Duplex Corrugated ✓

Material Steel Tensile strength 26-30 Smallest outside diameter 3'-2 1/4" ✓

Length of plain part {top — ✓ bottom — Thickness of plates {crown 13/32" ✓ bottom — Description of longitudinal joint Welded.

Dimensions of stiffening rings on furnace or c.c. bottom ✓

End plates in steam space: Material Steel ✓ Tensile strength 26-30 Thickness FRONT 29/32" ✓ BACK 7/8" Pitch of stays 16" x 14" ✓

How are stays secured Cable nuts & washers, secured into both plates.

Tube plates: Material {front steel ✓ back steel Tensile strength { 26-30. ✓ Thickness { 29/32" ✓ 13/16" ✓

Mean pitch of stay tubes in nests 9.69" Pitch across wide water spaces 14" ✓

Girders to combustion chamber tops: Material Steel. Tensile strength 26-30 ✓ Depth and thickness of girder

at centre 7" x 7/8" Length as per Rule 2'-4 3/32" ✓ Distance apart 5 1/8" ✓ No. and pitch of stays

in each Combustion chamber plates: Material Steel Tensile strength 26-30 ✓ Thickness: Sides 5/8" ✓ Back 19/32" ✓ Top 5/8" ✓ Bottom 5/8" ✓

Pitch of stays to ditto: Sides 9 1/2" x 8 3/4" Back 9" x 8 1/2" Top ✓ Are stays fitted with nuts or riveted over nuts ✓

Front plate at bottom: Material Steel. Tensile strength 26-30

Thickness 29/32" ✓ Lower back plate: Material Steel Tensile strength 26-30 ✓ Thickness 7/8" ✓

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

Main stays: Material Steel. Tensile strength 28-32 ✓

Diameter {At body of stay, or Over threads 2 1/4" ✓ No. of threads per inch 6. ✓

Screw stays: Material Steel Tensile strength 26-30 ✓

Diameter {At turned off part, or Over threads 1 1/2" ✓ No. of threads per inch 9. ✓



Are the stays drilled at the outer ends No. Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part} \\ \text{or} \\ \text{Over threads} \end{array} \right. \underline{1\frac{3}{4} \text{ or } 1\frac{5}{8}}$

No. of threads per inch 6.

Tubes: Material A.R. Widdell's Steel External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \underline{3''}$ Thickness $\left\{ \begin{array}{l} \underline{9.509} \\ \underline{9\frac{7}{16}} \end{array} \right.$ No. of threads per inch 9.

Pitch of tubes 4\frac{1}{4}'' x 4\frac{1}{8}'' Manhole compensation: Size of opening in shell plate 21'' x 17'' Section of compensating ring 7'' x 1\frac{1}{8}'' No. of rivets and diameter of rivet holes 52 - 1\frac{5}{16}''

Outer row rivet pitch at ends 6\frac{1}{4}'' Depth of flange if manhole flanged 3\frac{1}{2}'' Steam Dome: Material NONE.

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 _____ Thickness of crown _____ No. and diameter of stays _____ Inner radius of crown _____

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

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 _____

Pressure to which the safety valves are adjusted _____ Hydraulic test pressure: tubes _____ forgings and 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 yes and on behalf of _____

STOKTON MECHANICAL ENGINEERS & BOILERMAKERS LTD.
The foregoing is a correct description,
L. W. Riley - Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right. \left\{ \begin{array}{l} \text{1945 March 13, 23, 28, April 4, 12, 25,} \\ \text{May 1, 15, 18, 30, June 11, 20} \end{array} \right.$

Are the approved plans of boiler and superheater forwarded herewith 29/11/49
(If not state date of approval.)

Total No. of visits 12.

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

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

This boiler has been constructed under Special Survey & in accordance with the Rule Requirements & approved plan.

The materials & workmanship are good & on completion the boiler was hydraulically tested to 275 lbs/sq. & found satisfactory.

This boiler is being dispatched to Sunderland for B.M. Duff's Contract No. 245

This boiler has been efficiently fitted on board and its safety valves have been adjusted under steam.

L.R. Howe.

Survey Fee £ 7 : 14 : } When applied for, 2/7/ 1945.

Travelling Expenses (if any) £ : : } When received, 19

L. W. Riley
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 16 NOV 1945

Assigned Su F.E. machy. rpt.

