

# REPORT ON BOILERS.

No. 53537

21 JUL 1946

Received at London Office

Date of writing Report 10 When handed in at Local Office 10 Port of HULL

No. in Survey held at HULL Date, First Survey 29. 11. 44 Last Survey 4<sup>th</sup> June 1946

on the STEAM TUG EMPIRE LUCY YMS 1141 (Number of Visits ✓) Gross 244 Tons Net NIL

Built at GAINSBOROUGH By whom built J. S. Watson & Co. Ltd YMS. 1141. Yard No. 1556. When built 1946

Engines made at DERBY By whom made G. FLETCHER & Co. L<sup>o</sup> Engine No. 1657 When made ✓

Boilers made at HULL By whom made Chas. D. Holmes & Co. Boiler No. 1709. When made ✓

Nominal Horse Power 177 Owners MINISTRY OF WAR TRANSPORT Port belonging to HULL

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

Manufacturers of Steel Steel Corporation of Scotland (Letter for Record S.)

Total Heating Surface of Boilers 2778 sq. ft. Is forced draught fitted Yes. Coal or Oil fired Coal

No. and Description of Boilers One S.B. Working Pressure 210 lb/sq. in.

Tested by hydraulic pressure to 365 lb/sq. in. Date of test 30/4/45. No. of Certificate 4251. Can each boiler be worked separately —

Area of Firegrate in each Boiler 64 sq. ft. No. and Description of safety valves to each boiler 2 Spring loaded

Area of each set of valves per boiler { per Rule 18.60 as fitted 19.240 } Pressure to which they are adjusted 210 lb/sq. in. 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 1.0 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 No.

Largest internal dia. of boilers 15'-9 1/4" Length 11'-6" Shell plates: Material Steel Tensile strength 31-35 tons/sq. in.

Thickness 1 3/8" Are the shell plates welded or flanged No. Description of riveting: circ. seams { end D.R. Lap. } inter. —

long. seams T.R., D.B.S. Diameter of rivet holes in { circ. seams 1 1/32" } long. seams 1 1/32" Pitch of rivets { 3 7/8" } 9 1/8"

Percentage of strength of circ. end seams { plate 63-71% } rivets 43-33% Percentage of strength of circ. intermediate seam { plate — } rivets —

Percentage of strength of longitudinal joint { plate 84.6% } rivets 85.5% combined 86.3%

Thickness of butt straps { outer 1 1/16" } inner 1 3/16" No. and Description of Furnaces in each Boiler 3 cf. Deighton Section

Material Steel Tensile strength 26-30 tons/sq. in. Smallest outside diameter 3'-10"

Length of plain part { top — } bottom — Thickness of plates { crown 1 1/16" } bottom 1 1/16" Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom NONE.

End plates in steam space: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 1 7/32" Pitch of stays 18 5/8" x 19 1/4"

How are stays secured Double nuts + washers.

Tube plates: Material { front Steel } back Steel Tensile strength { 26-30 tons/sq. in. } Thickness { 15/16" } 7/8"

Mean pitch of stay tubes in nests 9 13/16" Pitch across wide water spaces 13 1/2" x 8 1/2"

Girders to combustion chamber tops: Material Steel Tensile strength 29-33 tons/sq. in. Depth and thickness of girder at centre 9 1/4" x 7/8" Double Length as per Rule 2'-8 29/32" Distance apart 9 1/2" No. and pitch of stays in each 3 @ 7 1/2"

Combustion chamber plates: Material Steel Tensile strength 26-30 tons/sq. in. Thickness: Sides 23/32" Back 23/32" Top 1 1/16" Bottom 7/8"

Pitch of stays to ditto: Sides 8 1/4" x 9 3/4" Back 8 1/2" x 9 1/2" Top 7 1/2" x 9 1/2" Are stays fitted with nuts or riveted over Nuts.

Front plate at bottom: Material Steel Tensile strength 26-30 tons/sq. in. Thickness 15/16" Lower back plate: Material Steel Tensile strength 26-30 tons/sq. in. Thickness 7/8"

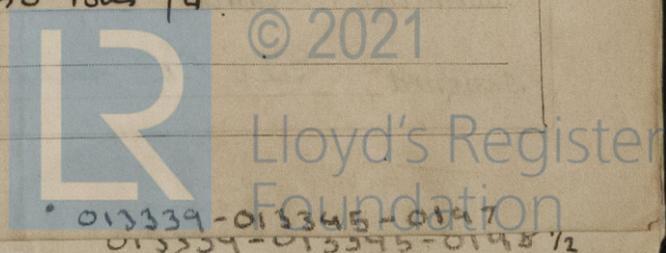
Pitch of stays at wide water space 13 3/4" x 9 3/8" Are stays fitted with nuts or riveted over Nuts.

Main stays: Material Steel Tensile strength 28-32 tons/sq. in.

Diameter { At body of stay, — } or 3 1/4" No. of threads per inch 8.

Screw stays: Material Steel Tensile strength 26-30 tons/sq. in.

Diameter { At turned off part, — } or 1 3/4" No. of threads per inch 10.



013339-013345-0147  
013339-013345-0148 1/2

Are the stays drilled at the outer ends No. Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \underline{2-2\frac{1}{8}"}$

No. of threads per inch 10

Tubes: Material L.W. Iron. External diameter  $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \underline{3"}$  Thickness  $\left\{ \begin{array}{l} \text{S.W.G.} \\ \text{3/16"} \end{array} \right. \underline{3/16"}$  No. of threads per inch 9

Pitch of tubes 4 1/4" x 4 1/4"

Manhole compensation: Size of opening in shell plate (16" x) 12" Section of compensating ring 12 3/16" x 1 3/8" No. of rivets and diameter of rivet holes 16 @ 1 3/32"

Outer row rivet pitch at ends 9 1/8" Depth of flange if Bottom manhole flanged 3 3/8" 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  $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \underline{\hspace{2cm}}$

Internal diameter \_\_\_\_\_ Thickness of crown \_\_\_\_\_ No. and diameter of stays \_\_\_\_\_

How connected to shell \_\_\_\_\_ Inner radius of crown \_\_\_\_\_

of rivets in outer row in dome connection to shell \_\_\_\_\_ Size of doubling plate under dome \_\_\_\_\_ Diameter of rivet holes and pitch \_\_\_\_\_

Type of Superheater NONE.

Manufacturers of  $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right. \underline{\hspace{2cm}}$

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.

The foregoing is a correct description,  
FOR CHARLES D. HOLMES & CO., LTD.

W.R. Evans Manufacturer.

Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops} \end{array} \right. \underline{1945. Nov. 22, 23, 25, 27, 29, 30. Dec. 2, 7, 8, 19, 21-22. Jan. 15. Mar. 28. Apr. 24, 30. Aug. 17. Sept. 5. Oct. 5, 22. Nov. 9.}$  Are the approved plans of boiler and superheater forwarded herewith 8-8-40  
 $\left\{ \begin{array}{l} \text{while} \\ \text{building} \end{array} \right. \underline{1946. Mar. 21. April.}$  (If not state date of approval.)

see machinery report. Total No. of visits in shops - 23

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. S. Tug. EMPIRE CHARLES. HULL Rpt. 52301.

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

The Boiler has been constructed under Special Survey in accordance with the Rules and the approved plan.

The Workmanship and Materials are good and when subjected to a hydraulic test of 365 lb/sq in it was found satisfactory in every respect.

The above boiler installed in "Empire Lucy" by Charles Holme, Hull, examined under steam, safety valves adjusted as required, accumulation test held and boiler found satisfactory on completion of all tests.

Survey Fee ... £ See machy. rpt. When applied for, 19

Travelling Expenses (if any) £ See machy. rpt. When received, 19

W. Shivers for self & J. Sillescu  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 2 AUG 1946

Assigned See F.E. machy. rpt.



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