

REPORT ON BOILERS.

RECEIVED

Received at London Office

10 AUG 1943

Date of writing Report 24.7. 1943 When handed in at Local Office 30.7. 1943 Port of MANCHESTER.

IN D.O.

No. in Survey held at MANCHESTER. Date, First Survey 19.4.43. Last Survey 13.7. 1943.

(Number of Visits 8) Gross Tons Net

on the S.S. "EMPIRE LEWIS".

Master Built at Thorne By whom built R. Dunstan & Sons Ld Yard No. 383. When built 1943

Engines made at Paisley By whom made McKie Bader Engine No. 1339 When made

Boilers made at BLACKBURN. By whom made Foster, Yates & Thom Ld. Boiler No. 6227 When made 1943.

Nominal Horse Power 85. Owners Ministry of War Transport Port belonging to

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

Manufacturers of Steel Colvilles Ltd. (Letter for Record S)

Total Heating Surface of Boilers 1716 sq. ft. per boiler. Is forced draught fitted Yes. Coal or Oil fired Coal

No. and Description of Boilers One S.E. Multitubular Scotch Boiler. Working Pressure 200 lbs/sq"

Tested by hydraulic pressure to 350 lbs Date of test 26.7.43. No. of Certificate 114. Can each boiler be worked separately -

Area of Firegrate in each Boiler 59 sq. ft. No. and Description of safety valves to each boiler Two ordinary

Area of each set of valves per boiler {per Rule - 9.97 sq. in. as fitted - 11.86 sq. in. Pressure to which they are adjusted 204 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 - 2 ft. Is oil fuel carried in the double bottom under boilers NONE

Smallest distance between shell of boiler and tank top plating NONE Is the bottom of the boiler insulated No

Largest internal dia. of boilers 13'0" Length 11'0" Shell plates: Material O.H. Steel. Tensile strength 29/32 tons/sq"

Thickness 1.5/32" Are the shell plates welded or flanged No. Description of riveting: circ. seams {end D.R. Lap. as fitted

long. seams T.R. D.B.S. Diameter of rivet holes in {circ. seams 1 1/4" long. seams 1 1/4" Pitch of rivets {3.4" 8 1/2"

Percentage of strength of circ. end seams {plate 63.2 rivets 54.0 49.6 Percentage of strength of circ. intermediate seam {plate 85.3 rivets

Percentage of strength of longitudinal joint {plate 93.2 rivets 89.2 107 Working pressure of shell by Rules 201.8 lbs/sq.inch.

Thickness of butt straps {outer 7/8" inner 1" No. and Description of Furnaces in each Boiler Three Deighton Corrugated.

Material O. H. Steel. Tensile strength 26/30 tons/sq.in. Smallest outside diameter 3'3 1/8"

Length of plain part {top 10 1/2" bottom 8.13/32" Thickness of plates {crown 9/16" bottom 9/16" Description of longitudinal joint Weld.

Dimensions of stiffening rings on furnace or c.c. bottom - Working pressure of furnace by Rules 208 lbs/sq.in.

End plates in steam space: Material O.H. Steel. Tensile strength 26/30 tons/sq" Thickness 1.1/16" Pitch of stays 18" x 17".

How are stays secured Nuts and washers inside and outside. Working pressure by Rules 206 lbs/sq".

Tube plates: Material {front O.H. Steel. Tensile strength {26/30 tons/sq.in. Thickness {3/4" 29/32"

Mean pitch of stay tubes in nests 10.9375" x 8.75" Pitch across wide water spaces 14" x 8 3/4" Working pressure {front 207.5 lbs/sq" back 209.5 lbs/sq"

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

at centre 7 1/4" x 1 1/2" Length as per Rule 28.6" Distance apart 8 1/2" No. and pitch of stays

in each 2 at 9" Working pressure by Rules 254.5 lbs/sq" Combustion chamber plates: Material O.H. Steel.

Tensile strength 26/30 tons/sq.in. Thickness: Sides 11/16" Back 21/32" Top Sides 11/16" Bottom Sides 11/16"

Pitch of stays to ditto: Sides 9" x 8 1/2" Back 8 1/2" x 8" Top 10 3/4" x 9" 8 1/2" x 9" Are stays fitted with nuts or riveted over Nuts.

Working pressure by Rules 203.5 lbs/sq". Front plate at bottom: Material O.H. Steel. Tensile strength 26/30 tons/sq"

Thickness 29/32" Lower back plate: Material O.H. Steel. Tensile strength 26/30 tons/sq" Thickness 13/16"

Pitch of stays at wide water space 14" x 8" Are stays fitted with nuts or riveted over Nuts.

Working Pressure 206.5 lbs/sq". Main stays: Material O. H. Steel. Tensile strength 28/32 tons/sq".

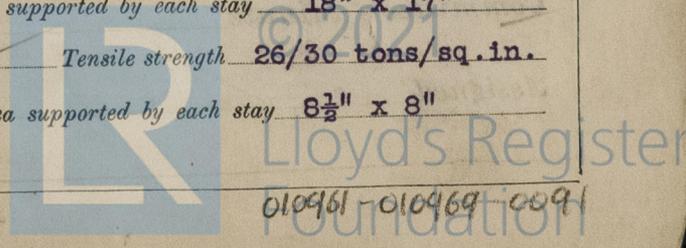
Diameter {At body of stay, - No. of threads per inch 6 Area supported by each stay 18" x 17" Over threads 2 7/8"

Working pressure by Rules 205 lbs/sq.in. Screw stays: Material O.H. Steel. Tensile strength 26/30 tons/sq.in.

Diameter {At turned off part, - No. of threads per inch 9 Area supported by each stay 8 1/2" x 8" Over threads 1 5/8"

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?

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Working pressure by Rules **210 lbs/sq.** the stays drilled at the outer ends No. Margin stays: Diameter ^{At turned off part,} _{or} **2", 1 7/8" & 1 3/4"**
 No. of threads per inch **9** Area supported by each stay **10" x 11 1/4"** Working pressure by Rules **198.6 lbs/sq.in.**
 Tubes: Material **Steel (Hot rolled)** External diameter ^{Plain} **3 1/4"** ^{Stay} **3 1/4"** Thickness **8 L.S.G.** ^{No. of threads per inch} **9**
 Pitch of tubes **9.15/16" x 8 3/4"** ^{4 3/8" + 4 3/8"} Working pressure by Rules **262.5 lbs/sq."** Manhole compensation: Size of opening in shell plate **17" x 21"** Section of compensating ring **8 1/2" x 1 1/8"** No. of rivets and diameter of rivet holes **36 at 1 1/2"**
 Outer row rivet pitch at ends **8 1/2"** 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 _____ Manufacturers of ^{Tubes} _____ _{Steel castings} _____
 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 _____
 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 **Yes**
 The foregoing is a correct description,
FOSTER, YATES & THOMAS LTD. Manufacturer.
W. Shields

1943. April 19, May 7, 18, 31. June 8, 18, July 6, 1943.
 Dates of Survey ^{During progress of work in shops - - -} _____ Are the approved plans of boiler and superheater forwarded herewith **10.11.41.**
 while building ^{During erection on board vessel - - -} _____ (If not state date of approval.)
 Total No. of visits _____

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 OF TESTED MATERIALS AND IN ACCORDANCE WITH THE SECRETARY'S LETTERS, APPROVED PLANS AND THE REQUIREMENTS OF THE RULES. THE MATERIALS AND WORKMANSHIP ARE OF GOOD QUALITY AND THE BOILER WHEN TESTED IN THE SHOPS UNDER AN HYDRAULIC PRESSURE OF THREE HUNDRED AND FIFTY LBS PER SQUARE INCH WAS FOUND SOUND AND TIGHT.**

THIS BOILER, IN MY OPINION, IS SUITABLE TO BE FITTED ON BOARD A VESSEL CLASSED WITH THIS SOCIETY AND FOR THE PURPOSE INTENDED.

THE BOILER SHELL PLATE AT THE FRONT END AND LEFT HAND SIDE HAS BEEN STAMPED:-
 No. 114.
 LLOYD'S TEST.
 350 lbs/sq.in.
 W.P. 200 lbs/sq.in.
 W.J.F. 6.7.43.

Abon boiler installed in Empire Lewis at Hull, examined under steam, safety valves adjusted, accumulation test held and after all tests found satisfactory W. Shields

Survey Fee & 25% ... £ 14 : 7 : 6 When applied for, 29.7. 19 43.
 Travelling Expenses (if any) £ 2 : 0 : 0 When received, 19 _____
W. J. Ferguson & Knowles
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 22 OCT 1943**
 Assigned *See fe. made rpl.*
Hul 52145

