

Rpt. 5a.

## REPORT ON BOILERS.

No. 11574

RECEIVED

10 AUG 1943

IN D.O.

Received at London Office

Date of writing Report 24.7.

to 43

When handed in at Local Office 30.7.

to 43

Port of MANCHESTER.

No. in Survey held at

MANCHESTER.

Date, First Survey 19.4.43.

Last Survey 13.7.

19 43.

Reg. Book.

(Number of Visits 8)

Gross

Net

on the

S.S. "EMPIRE LEWIS".

Master

Built at

Thorne

By whom built

R. Dunstan &amp; Sons Ltd Yard No. 383. When built 1943

Engines made at

Paisley

By whom made

McKie &amp; Bards

Engine No. 1339 When made

Boilers made at

BLACKBURN.

By whom made

Foster, Yates &amp; Thom Ltd.

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

Pressure to which they are adjusted

20.4 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.

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

Percentage of strength of circ. intermediate seam

plate

85.3

rivets

Percentage of strength of longitudinal joint

plate

93.2

rivets

89.2

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 1/16"

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.

back

Tensile strength

26/30 tons/sq.in.

Thickness

3/4"

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,

-

Over threads

2 7/8"

No. of threads per inch

6

Area supported by each stay

18" x 17"

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,

-

Over threads

1 5/8"

No. of threads per inch

9

Area supported by each stay

8 1/2" x 8"



Working pressure by Rules 210 lbs/sq. in. the stays drilled at the outer ends No. Margin stays: Diameter At turned off part, 2", 1 1/8" & 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" Thickness 8 L.S.G. No. of threads per inch 9  
Pitch of tubes 9.15/16" x 8 3/4" Working pressure by Rules 262.5 lbs/sq. in. 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 1/4"  
Outer row rivet pitch at ends 8 1/8" 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   
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   
Number of elements  Material of tubes  Steel castings   
Material of headers  Tensile strength  Internal diameter and thickness of tubes   
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 22 inclusive for boilers been complied with Yes

The foregoing is a correct description,

FOSTER, YATES & THOMAS LTD.

Manufacturer.

1943. April 19, May 7, 18, 31. June 8, 18, July 6, 18

Dates of Survey   
During progress of work in shops - - -  
while building   
During erection on board vessel - - -

Are the approved plans of boiler and superheater forwarded herewith 10.11.41.  
(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.

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

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 fee made, rpl.

Hul 52145



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Foundation