

## REPORT ON BOILERS.

No. 32301

FEB 12 1938

Received at London Office

Date of writing Report

193

When handed in at Local Office

10 FEB. 1938

Port of

SUNDERLAND.

No. in Survey held at

SUNDERLAND.

Date, First Survey

Last Survey

Feb. 4 1938

on the

J.M. S. GEMSTONE

(Number of Visits

Gross

4986

Tons

Net 2941

Master

Built at

Sunderland

By whom built

H. J. Laing &amp; Sons, Ltd

Yard No.

718 When built 1938

Engines made at

Sunderland

By whom made

H. E. Marine Eng. Co. Ltd

Engine No.

2878 When made 1938

Boilers made at

do.

By whom made

do.

Boiler No.

2878 When made 1938

Nominal Horse Power

353

Owners

The Minster S.S. Co. Ltd

Port belonging to

London

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

Manufacturers of Steel

Steel Company of England

(Letter for Record S.)

Total Heating Surface of Boilers

1235 sq

Is forced draught fitted

no

Coal or Oil fired

Coal

No. and Description of Boilers

1. Cylindrical multitubular

Working Pressure 220 lbs.

Tested by hydraulic pressure to

380 lbs

Date of test

8/10/37

No. of Certificate

4244

Can each boiler be worked separately

yes

Area of Firegrate in each Boiler

34.37 sq

No. and Description of safety valves to each boiler

2 direct Spring

Area of each set of valves per boiler

(per Rule

6.68 sq

(as fitted

7.8 sq

Pressure to which they are adjusted

220 lbs

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' 6"

Is oil fuel carried in the double bottom under boilers

no

Smallest distance between shell of boiler and tank top plating

2' 6"

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

11' 9 23/32"

Length

10' 6"

Shell plates: Material

Steel

Tensile strength

29/33 tons/sq

Thickness

1 9/16"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end

D. R. L

Long. seams

T. R. D. B. S.

Diameter of rivet holes in

circ. seams

1 3/16"

long. seams

1 3/16"

Pitch of rivets

3 1/2"

8 3/8"

Percentage of strength of circ. end seams

plate

66

rivets

444

Percentage of strength of circ. intermediate seam

plate

—

rivets

—

Percentage of strength of longitudinal joint

plate

85.82

rivets

86.21

combined

88.76

Working pressure of shell by Rules

220.3 lbs.

Thickness of butt straps

(outer

7/8"

(inner

1"

No. and Description of Furnaces in each Boiler

2 Dighton. Stephen four way rucks.

Material

Steel

Tensile strength

26/30 tons/sq

Smallest outside diameter

3' 5 17/32"

Length of plain part

(top

—

(bottom

—

Thickness of plates

(crown

3 1/4"

(bottom

—

Description of longitudinal joint

weld.

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

—

Working pressure of furnace by Rules

226 lbs.

End plates in steam space: Material

Steel

Tensile strength

26/30 tons/sq

Thickness

1 1/6"

Pitch of stays

15 5/8" x 15"

How are stays secured

double nuts

Working pressure by Rules

223 lbs.

Tube plates: Material

(front

3 steel

(back

—

Tensile strength

{ 26/30 tons/sq

Thickness

{ 1 1/6"

Pitch of stays

15 5/8" x 15"

Lean pitch of stay tubes in nests

10.375°

Pitch across wide water spaces

14 1/4" x 9"

Working pressure

(front

240 lbs

(back

229 lbs.

Girders to combustion chamber tops: Material

Steel

Tensile strength

28/32 tons/sq

Depth and thickness of girder

—

—

—

—

—

—

Centre

9 1/8" x 2 1/6"

Length as per Rule

31.9"

Distance apart

11 3/4"

No. and pitch of stays

—

Each

3, 7 1/2"

Working pressure by Rules

224 lbs.

Combustion chamber plates: Material

Steel

Tensile strength

26/30 tons/sq

Thickness: Sides

25/32"

Back

25/32"

Top

25/32"

Bottom

25/32"

Pitch of stays to ditto: Sides

10" x 9 5/8"

Back

9 3/4" x 9 5/8"

Top

11 3/4" x 7 1/2"

Are stays fitted with nuts or riveted over

nuts fitted

Working pressure by Rules

222 lbs.

Front plate at bottom: Material

Steel

Tensile strength

26/30 tons/sq

Thickness

1 1/6"

Lower back plate: Material

Steel

Tensile strength

26/30 tons/sq

Thickness

1 1/6"

Pitch of stays at wide water space

14 1/2" x 9 5/8"

Are stays fitted with nuts or riveted over

nuts fitted

—

—

Working Pressure

225 lbs.

Main stays: Material

Steel

Tensile strength

28/32 tons/sq

Diameter

(At body of stay,

2 3/8"

(Over threads

2 3/4"

No. of threads per inch

6

Area supported by each stay

14.55" x 15"

Working pressure by Rules

220 lbs.

Screw stays: Material

Steel

Tensile strength

26/30 tons/sq

Diameter

(At turned off part,

1 7/8"

(Over threads

—

No. of threads per inch

9

Area supported by each stay

9 1/8" x 9 5/8"

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W170-0059



Working pressure by Rules 223 Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 2" or Over threads 2" /  
No. of threads per inch 9 Area supported by each stay 11 1/2" x 9 5/8" Working pressure by Rules 222 lbs.  
Tubes: Material Steamer shell External diameter { Plain 3 1/4" Thickness 8.4.6. No. of threads per inch 9  
(Stay 3 1/4" / 3/8", 5/16", 1/4" /  
Pitch of tubes 4 1/2" x 4 1/2" Working pressure by Rules 221 lbs. Manhole compensation: Size of open  
END shell plate 16" x 12" Section of compensating ring — No. of rivets and diameter of rivet holes —  
Outer row rivet pitch at ends — Depth of flange if manhole flanged 3 9/16" 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  
stays — Inner radius of crown — Working pressure by Rules —  
How connected to shell — Size of doubling plate under dome — Diameter of rivet holes and  
of rivets in outer row in dome connection to shell —

Type of Superheater not fitted 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  
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 at  
Rules — Pressure to which the safety valves are adjusted — Hydraulic test pressure —  
tubes —, castings — and after assembly in place — Are drain cocks or valves —  
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 THE NORTH EASTERN MARINE ENGINEERING CO. LD

Dates { During progress of { Please see trch. Rpt. Are the approved plans of boiler and superheater forwarded herewith  
of Survey { work in shops -- (If not state date of approval.)  
while { During erection on {  
building { board vessel -- {  
Total No. of visits —

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

*This boiler has been constructed under Special Survey in accordance with the approved plans, Secretary's letters and the requirements of the Rules. Workmanship and materials are good. For recommendation please see Rpt. 4.*

Survey Fee ... £ Please see Rpt 4. When applied for, 192  
Travelling Expenses (if any) £ See When received, 192

Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute

TUE 1 MAR 1938

Assigned

See Std. F.C. 52301



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