

REPORT ON BOILERS.

No. 30377

Received at London Office

6 JUN 1930

Date of writing Report

192

When handed in at Local Office

5 JUNE 1930

Port of *Sunderland*.No. in Survey held at
Reg. Book.*Sunderland*

Date, First Survey

Last Survey

June 5 1930

(Number of Visits

Gross *4585*Tons *2718*

on the

S.S. "HARBERTON"

Master

Built at

Sunderland

By whom built

Short Bros Ltd.

Yard No.

442

When built

1920

Engines made at

Sunderland

By whom made

Geo Hark Ltd.

Engine No

1188

When made

1920

Boilers made at

do

By whom made

do

Boiler No.

1188

When made

1920

Nominal Horse Power

417

Owners

National Shipping Co Ltd

Port belonging to

London

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Thyssen's Munster

(Letter for Record

HT (+)

Total Heating Surface of Boilers

5764 sq ft

Is forced draught fitted

No

Coal or Oil fired

Coal

No. and Description of Boilers

Two S.E. 8 ft 6 in

Working Pressure

180 lbs

Tested by hydraulic pressure to

320 lbs

Date of test

7/5/30

No. of Certificate

4095

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

69.25 sq ft

No. and Description of safety valves to each boiler

Two lock burst High lift S.L.

Area of each set of valves per boiler

9.235

Pressure to which they are adjusted

185 lbs

Are they fitted with easing gear

Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

Yes

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'-0"

Is the bottom of the boiler insulated

No

Largest internal dia. of boilers

16'-9 1/2"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength

29 to 33 tons

Thickness

1 1/8"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

*and**TR 2*

long. seams

TR. D.B.S

Diameter of rivet holes in

*circ. seams**F 1 1/8"**long. seams**1 3/8"*

Pitch of rivets

F 3 3/4" B 4 1/2"

Percentage of strength of circ. end seams

*plate**F 65.1366.6*

Percentage of strength of circ. intermediate seam

*plate**F 43.2, B 43.1*

Percentage of strength of longitudinal joint

*plate**85.13*

Working pressure of shell by Rules

*89.5**combined**88.1**180 lbs*

Thickness of butt straps

*outer**1 1/2"**inner**1 1/2"*

No. and Description of Furnaces in each Boiler

3 Con. Freighters

Material

Steel

Tensile strength

26 to 30 tons

Smallest outside diameter

4'-2 1/8"

Length of plain part

*top**bottom**4 1/8"*

Thickness of plates

*top**bottom**4 1/8"*

Description of longitudinal joint

Welded

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

*Working pressure of furnace by Rules**198 lbs*

End plates in steam space: Material

Steel

Tensile strength

26 to 30 tons

Thickness

1 1/2"

Pitch of stays

24 1/4" x 19 1/4"

How are stays secured

DN & W.

Working pressure by Rules

184 lbs

Tube plates: Material

Steel

Tensile strength

26 to 30 tons

Thickness

*5 1/8"**185 lbs*

Mean pitch of stay tubes in nests

10 1/4" x 10 1/4"

Pitch across wide water spaces

14 1/4"

Working pressure

*front**back*

Girders to combustion chamber tops: Material

Steel

Tensile strength

29 to 33 tons

Depth and thickness of girder

at centre

8 1/8" x 1 3/4"

Length as per Rule

35"

Distance apart

9 1/4"

No. and pitch of stays

in each

2 @ 10 1/4"

Working pressure by Rules

186 lbs

Combustion chamber plates: Material

Steel

Tensile strength

26 to 30 tons

Thickness: Sides

25"

Back

4 1/8"

Top

25"

Bottom

25"

Pitch of stays to ditto: Sides

10 1/4" x 9 1/4"

Back

9 1/8" x 9"

Top

10 1/4" x 9 1/4"

Are stays fitted with nuts or riveted over

Nuts

Working pressure by Rules

180 lbs

Front plate at bottom: Material

Steel

Tensile strength

26 to 30 tons

Thickness

13 1/8" x 13 1/8"

Lower back plate: Material

Steel

Tensile strength

26 to 30 tons

Thickness

15"

Pitch of stays at wide water space

16" x 9 1/8"

Are stays fitted with nuts or riveted over

Nuts

Working Pressure

208 lbs

Main stays: Material

Steel

Tensile strength

28 to 32 tons

Diameter

*At body of stay**3 1/8" x 3 1/8"*

No. of threads per inch

6

Area supported by each stay

20 1/8" x 20 1/8"

Working pressure by Rules

*At turned off part**3 1/8" x 3 1/8"*

Screw stays: Material

Steel

Tensile strength

2 1/2 to 2 5/8 tons

Diameter

*At turned off part**1 7/8"*

No. of threads per inch

9

Area supported by each stay

10 1/4" x 9 1/4"

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Lloyd's Register
Foundation

Working pressure by Rules $214 \frac{135}{8}$ Are the stays drilled at the outer ends *No* Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. 2 \frac{1}{2} \times 2 \frac{1}{2}$
No. of threads per inch *9* Area supported by each stay $12 \frac{13}{16} \times 9 \frac{1}{2}$ Working pressure by Rules $208 \frac{135}{8}$
Tubes: Material *ST STEEL* External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. 3 \frac{1}{4}$ Thickness $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. 8 \text{ W.C. } 5 \frac{1}{8}$ No. of threads per inch *9*
Pitch of tubes $4 \frac{1}{2} \times 4 \frac{3}{8}$ Working pressure by Rules $216 \frac{135}{8}$ Manhole compensation: Size of opening in
shell plate 16×12 Section of compensating ring $8 \frac{1}{2} \times 1 \frac{1}{2}$ No. of rivets and diameter of rivet holes $30 \times 1 \frac{3}{8}$
Outer row rivet pitch at ends $9 \frac{1}{4}$ Depth of flange if manhole flanged *-* Steam Dome: Material *-*
Tensile strength *-* Thickness of shell *-* Description of longitudinal joint *-*
Diameter of rivet holes *-* Pitch of rivets *-* Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. *-*
Internal diameter *-* Working pressure by Rules *-* Thickness of crown *-* No. and diameter of
stays *-* Inner radius of crown *-* Working pressure by Rules *-*
How connected to shell *-* Size of doubling plate under dome *-* Diameter of rivet holes and pitch
of rivets in outer row in dome connection to shell *-*$

Type of Superheater *-* Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right. *-*
Number of elements *-* Material of tubes *-* Internal diameter and thickness of tubes *-*
Material of headers *-* Tensile strength *-* Thickness *-* Can the superheater be shut off and
the boiler be worked separately *-* Is a safety valve fitted to every part of the superheater which can be shut off from the boiler *-*
Area of each safety valve *-* Are the safety valves fitted with easing gear *-* Working pressure as per
Rules *-* Pressure to which the safety valves are adjusted *-* Hydraulic test pressure: *-*
tubes *-* castings *-* and after assembly in place *-* Are drain cocks or valves fitted
to free the superheater from water where necessary *-*
Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with *Yes*$

The foregoing is a correct description,
FOR GEORGE CLARK LIMITED
W. B. Spence Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops - -} \end{array} \right. *Please see Mch. Rpt.* Are the approved plans of boiler and superheater forwarded herewith
while building $\left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel - -} \end{array} \right. *-* (If not state date of approval.)
Total No. of visits *-*$$

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been built under Special Survey & the materials & workmanship are good. On completion they were satisfactorily fitted in the vessel & the safety valves adjusted under steam. For notation see machinery report.*

Survey Fee ... £ *✓* : : When applied for, 192
Travelling Expenses (if any) £ *✓* : : When received, 192

Harbottle
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 6 JUN 1930*
Assigned *See attached J.C. App*