

## REPORT ON BOILERS.

No. 32487

SEP 29 1938

Received at London Office

Date of writing Report

193

When handed in at Local Office

28 SEP 1938

Port of

SUNDERLAND

No. in Survey held at

SUNDERLAND

Date, First Survey

Last Survey 23 Sept 1938

Reg. Book.

(Number of Visits)

Gross 4877

Tons Net 2887

on the

Master

Built at

Sunderland

By whom built

Bortham &amp; Son, Ltd

Yard No. 280

When built 1938

Engines made at

Sunderland

By whom made

W. S. Marine Eng. Co. (1938) Ltd.

Engine No. 2906

When made 1938

Boilers made at

do

By whom made

do

Boiler No. 2906

When made 1938

Nominal Horse Power

Owners

The Navigation &amp; Coal Trades Co

Port belonging to

London

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

Manufacturers of Steel

The Steel Co. of Scotland

(Letter for Record)

Total Heating Surface of Boilers

4610 sq

Is forced draught fitted

yes

Coal or Oil fired either

No. and Description of Boilers

2 Cylindrical Multitubular

Working Pressure 220 lbs

Tested by hydraulic pressure to

380 lbs

Date of test

20/6/38

No. of Certificate

4276

Can each boiler be worked separately

yes

Area of Firegrate in each Boiler

47.5 sq

No. and Description of safety valves to each boiler

2 direct spring

Area of each set of valves per boiler

per Rule

12.5 sq

as fitted

14.12 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

1'-0"

Is oil fuel carried in the double bottom under boilers

no

Smallest distance between shell of boiler and tank top plating

2'-4"

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

14'-9 3/32"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength 29/33 tons/sq in

Thickness

1 27/64"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

D.R.L.

Long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams

1 15/32"

Pitch of rivets

4 3/8"

Percentage of strength of circ. end seams

plate 66.4.

rivets 43.2.

Percentage of strength of circ. intermediate seam

plate —

rivets —

Percentage of strength of longitudinal joint

plate 85.31

rivets 88.58

Working pressure of shell by Rules 220.9 lbs.

Thickness of butt straps

outer 1 3/32"

No. and Description of Furnaces in each Boiler

3 Brighton corrugated. Stephen Garsley

Material

Steel

Tensile strength 26/30 tons/sq in

Smallest outside diameter

3'-6 1/32"

Length of plain part

top —

bottom —

Thickness of plates

circ. seams

1 1/4"

Description of longitudinal joint

weld.

Dimensions of stiffening rings on furnace or ex. bottom

Working pressure of furnace by Rules

220 lbs.

End plates in steam space: Material

Steel

Tensile strength

26/30 tons/sq in

Thickness

1 7/16"

Pitch of stays 1'-9" x 1'-9"

How are stays secured

double nuts

Working pressure by Rules

220 lbs.

Tube plates: Material

front Steel

back Steel

Tensile strength

26/30 tons/sq in

Thickness

27/32"

Mean pitch of stay tubes in nests

10.4

Pitch across wide water spaces

14" x 8 7/8"

Working pressure

front 220 lbs.

back 227 lbs.

Girders to combustion chamber tops: Material

Steel

Tensile strength 28/32 tons/sq in

Depth and thickness of girder

at centre 8 5/8" x 1 7/8"

Length as per Rule

31.94

Distance apart

10 1/2"

No. and pitch of stays

in each

2

10"

Working pressure by Rules

225 lbs.

Combustion chamber plates: Material

Steel

Tensile strength 26/30 tons/sq in

Thickness: Sides

13/16"

Back 13/16"

Top 13/16"

Bottom 13/16"

Pitch of stays to ditto: Sides

10 1/2" x 10"

Back 10 7/8" x 9 7/8"

Top 10 1/2" x 10"

Are stays fitted with nuts or riveted over

nuts fitted.

Working pressure by Rules

221 lbs.

Front plate at bottom: Material

Steel

Tensile strength 26/30 tons/sq in

Thickness

1 1/8"

Lower back plate: Material

Steel

Tensile strength 26/30 tons/sq in

Thickness 31/32"

Pitch of stays at wide water space 1'-2 1/2" x 9 7/8"

Are stays fitted with nuts or riveted over

nuts fitted.

Working Pressure

223 lbs

Main stays: Material

Steel

Tensile strength 28/32 tons/sq in

Diameter

At body of stay,

3 3/8"

No. of threads per inch

6

Area supported by each stay 1'-9" x 1'-9"

Over threads

3 3/4"

Working pressure by Rules

227 lbs

Screw stays: Material

Steel

Tensile strength 26/30 tons/sq in

Diameter

At turned off part,

2"

No. of threads per inch

9

Area supported by each stay 10 7/8" x 9 7/8"

Over threads

2"





Working pressure by Rules *233 1/2* Are the stays drilled at the outer ends *no* Margin stays: Diameter *2 1/8"*  
 No. of threads per inch *9* Area supported by each stay *12 1/2" x 9 1/8"* Working pressure by Rules *234 1/2*  
 Tubes: Material *Steel* External diameter *3"* Thickness *1/16", 3/8", 1/2"* No. of threads per inch *9*  
 Pitch of tubes *4 1/2" x 4 1/4"* Working pressure by Rules *221 1/2* Manhole compensation: Size of opening in  
 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 *4 1/8"* 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 *Smoke tube* Manufacturers of Tubes *Talbot Stead*  
 Number of elements *96* Material of tubes *S. D. Steel* Steel castings *Foolingham Steel Co*  
 Material of headers *Forged steel* Tensile strength *26/30 tons/sq. in.* Thickness *1 1/8"* Can the superheater be shut off and  
 the boiler be worked separately *yes* Is a safety valve fitted to every part of the superheater which can be shut off from the boiler *yes*  
 Area of each safety valve *3 1/4 sq. in.* Are the safety valves fitted with easing gear *yes* Working pressure as per  
 Rules *220 1/2* Pressure to which the safety valves are adjusted *227 1/2 lbs.* Hydraulic test pressure:  
 tubes *1500 lbs.* castings *660 lbs.* and after assembly in place *450 lbs.* Are drain cocks or valves fitted  
 to free the superheater from water where necessary *yes*  
 Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with *yes*

THE NORTH LANCASHIRE ENGINEERING CO. (1888) LTD. Manufacturer.

Dates of Survey *During progress of work in shops - - -* Please see Machy Rpt Are the approved plans of boiler and superheater forwarded herewith  
 while building *During erection on board vessel - - -* (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 constructed under special survey in accordance with the approved plans, Surveyor's letters and the requirements of the Rules. Workmanship and materials are good.*

*For recommendation please see Rpt 4.*

*[Faint handwritten notes and signatures]*

Survey Fee *£ 100* When applied for, *192*  
 Travelling Expenses (if any) *£ 100* When received, *192*

Committee's Minute *TUE 4 OCT 1938*  
 Assigned *See F.E. machy rpt*