

## REPORT ON BOILERS.

No. 97058

Received at London Office JAN 14 1939

Date of writing Report

10

When handed in at Local Office

11/11 1939 Port of

NEWCASTLE-ON-TYNE

No. in Survey held at  
Reg. Book.

South Shields

Date, First Survey

17 Jan 1938

Last Survey

4 Jan 1939

(Number of Visits)

Gross 6935.26  
Tons Net 4227.97

10231 on the

S. S. TURKISTAN

Master

Built at S. Shields

By whom built

J. Readhead &amp; Sons Ltd

Yard No. 514

When built 1939

Engines made at

South Shields

By whom made

J. Readhead &amp; Sons Ltd

Engine No. 514

When made 1939

Boilers made at

South Shields

By whom made

J. Readhead &amp; Sons Ltd

Boiler No. 514

When made 1939

Nominal Horse Power

Owners

Strick Line (1923) Ltd

Port belonging to

London

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

Manufacturers of Steel

The Steel Company of Scotland Ltd

(Letter for Record S)

Total Heating Surface of Boilers

8994 sq

Is forced draught fitted

Yes

Coal or Oil fired

Both

No. and Description of Boilers

3 Single ended multitubular

Working Pressure 220 lb/sq

Tested by hydraulic pressure to

380 lb/sq

Date of test

S-12-9-38  
P-27-9-38  
C-11-10-38

No. of Certificate

S-797  
P-798  
C-799

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

63.3 sq

No. and Description of safety valves to each boiler

2 Double spring loaded (A. Cockburn H.L.)

Area of each set of valves per boiler

per Rule 10.67 sq

as fitted 11.88 sq

Pressure to which they are adjusted

220 lb/sq

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

3'-2"

Is oil fuel carried in the double bottom under boilers

Yes

Smallest distance between shell of boiler and tank top plating

2'-3"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

15'-9 1/16"

Length

12'-0"

Shell plates: Material

S. M. Steel

Tensile strength

30-34 tons/sq

Thickness

1 1/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end D. R. L. J.

long. seams

T. R. D. B. S.

Diameter of rivet holes in

circ. seams 1 1/2"

long. seams 1 1/2"

Pitch of rivets

4 1/4"

Percentage of strength of circ. end seams

plate 64.9

rivets 43.7

Percentage of strength of circ. intermediate seam

plate

rivets

Percentage of strength of longitudinal joint

plate 85.0

rivets 86.3

combined 87.29

Working pressure of shell by Rules

220.6 lb/sq

Thickness of butt straps

outer 1 1/8"

inner 1 1/4"

No. and Description of Furnaces in each Boiler

4 Dighton Type

Material

S. M. Steel

Tensile strength

26-30 tons/sq

Smallest outside diameter

2'-11 1/16"

Length of plain part

top

bottom

Thickness of plates

crown 1 1/32"

bottom 3/32"

Description of longitudinal joint

Yes

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

Working pressure of furnace by Rules

240.4 lb/sq

End plates in steam space: Material

S. M. Steel

Tensile strength

26-30 tons/sq

Thickness

1 1/16"

Pitch of stays

20" x 20"

How are stays secured

Double nut washers outside (12 3/4" dia) (1 1/2" dia)

Working pressure by Rules

229 lb/sq

Tube plates: Material

front S. M. Steel

back S. M. Steel

Tensile strength

26-30 tons/sq

Thickness

15/16"

Pitch of stays

20" x 20"

Mean pitch of stay tubes in nests

10 1/4"

Pitch across wide water spaces

14"

Working pressure

front 304 lb/sq

back 226 lb/sq

Girders to combustion chamber tops: Material

S. M. Steel

Tensile strength

29-33 tons/sq

Depth and thickness of girder

at centre 8 3/4" x 1 3/4"

Length as per Rule

2'-9"

Distance apart

9 1/2"

No. and pitch of stays

in each 20 9 1/4"

Working pressure by Rules

222 lb/sq

Combustion chamber plates: Material

S. M. Steel

Tensile strength

26-30 tons/sq

Thickness

Sides 3/4"

Back 3/32"

Top 3/4"

Pitch of stays to ditto

Sides 9 1/8" x 8 3/4"

Back 10 5/16" x 9"

Top 9 1/2" x 9 1/4"

Are stays fitted with nuts or riveted over

Nuts

Working pressure by Rules

225 lb/sq

Front plate at bottom: Material

S. M. Steel

Tensile strength

26-30 tons/sq

Thickness

15/16"

Lower back plate: Material

S. M. Steel

Tensile strength

26-30 tons/sq

Pitch of stays at wide water space

14" x 9"

Are stays fitted with nuts or riveted over

Nuts

Working Pressure

226 lb/sq

Main stays: Material

S. M. Steel

Tensile strength

28-32 tons/sq

Diameter

At body of stay, 3 5/8"

Over threads

No. of threads per inch

6

Working pressure by Rules

232 lb/sq

Screw stays: Material

S. M. 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

441 sq

Area supported by each stay

92.8 sq



Working pressure by Rules  $231 \text{ lbs.}$  Are the stays drilled at the outer ends ☒ No Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right\} 2"$   
No. of threads per inch  $9$  Area supported by each stay  $109.7 \text{ in.}^2$  Working pressure by Rules  $225 \text{ lbs.}$   
Tubes: Material  $3 \text{ rows}$  External diameter  $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right\} 3"$  Thickness  $\left\{ \begin{array}{l} \text{S.L.S.G.} \\ \text{5/16" 3/8"} \end{array} \right\}$  No. of threads per inch  $9$   
Pitch of tubes  $11\frac{1}{4} \times 8\frac{1}{4}$  Working pressure by Rules  $254 \text{ lbs.}$  Manhole compensation: Size of opening in  
shell plate  $16 \times 12$  Section of compensating ring  $8 \times 1\frac{1}{2}$  No. of rivets and diameter of rivet holes  $280 \frac{1}{2}$   
Outer row rivet pitch at ends  $10$  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 *The Superheater Co. Ltd* Manufacturers of

*See approved plans & certificates of test.*  
Number of elements  $68$  Material of tubes  $S.D. Steel$  Internal diameter and thickness of tubes  $16\frac{1}{4} \times 2.5\frac{1}{4}$   
Material of headers  $Forged Steel$  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  $3.54 \text{ in.}^2$  Are the safety valves fitted with easing gear ☒ Working pressure as per  
Rules  $220 \text{ lbs.}$  Pressure to which the safety valves are adjusted  $225 \text{ lbs.}$  Hydraulic test pressure:  
tubes  $1000 \text{ lbs.}$  forgings and castings  $660 \text{ lbs.}$  and after assembly in place  $450 \text{ lbs.}$  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 ☒

FOR JOHN READHEAD & SONS, LTD.

The foregoing is a correct description,

Manufacturer.

CHAIRMAN & MANAGING DIRECTOR

Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops - -} \\ \text{while} \\ \text{building} \end{array} \right\} \left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel - -} \end{array} \right\}$

Are the approved plans of boiler and superheater forwarded herewith  $20.5.37$  ☒ (If not state date of approval.)

Total No. of visits

Is this Boiler a duplicate of a previous case ☒ Yes If so, state Vessel's name and Report No. *SHAHRISTAN. 96685.*

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

*The boilers have been built under special survey in accordance with rule requirements & approved plans. Materials & workmanship are good. Hydraulic test satisfactory. They have been efficiently installed & fixed in vessel, examined under steam the safety valves adjusted to the approved pressure.*

Survey Fee ... £

Travelling Expenses (if any) £

When applied for,

19

When received,

19

*J. H. Matthews*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 20 JAN 1939

Assigned

*See F-12 machy rpt.*



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