

REPORT ON BOILERS.

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 **South Shields** Date, First Survey **17 Jan 1938** Last Survey **4 Jan 1939**

10231 on the **S.S. TURKISTAN** (Number of Visits) } Gross **6935.26**
Tons } Net **4227.97**

Master Built at **S. Shields** By whom built **J. Readhead & Sons Ltd** Yard No. **514** When built **1939**

Engines made at **South Shields** By whom made **J. Readhead & Sons Ltd** Engine No. **514** When made **1939**

Boilers made at **South Shields** By whom made **J. Readhead & 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 ft** Is forced draught fitted **Yes** Coal or Oil fired **Both**

No. and Description of Boilers **3 Single ended multitubular** Working Pressure **220 lb sq in**

Tested by hydraulic pressure to **380 lb sq in** Date of test **5-12-9-38** No. of Certificate **S-797** Can each boiler be worked separately **Yes**

Area of Firegrate in each Boiler **63.3 sq ft** No. and Description of safety valves to each boiler **2 Double spring loaded (A. Cockburn)**

Area of each set of valves per boiler **per Rule 10.67 sq ft** Pressure to which they are adjusted **220 lb sq in** 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 **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 lb sq in**

Thickness **1 15/32"** 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"** Pitch of rivets **4 1/4"**

Percentage of strength of circ. end seams {plate **64.8** rivets **40.7** Percentage of strength of circ. intermediate seam {plate **85.0** rivets **86.3** Working pressure of shell by Rules **220.6 lb sq in**

Percentage of strength of longitudinal joint {plate **87.29** rivets **86.3** combined **87.29**

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 lb sq in** Smallest outside diameter **2'-11 15/16"**

Length of plain part {top **19"** bottom **32"** Thickness of plates {crown **19"** bottom **32"** Description of longitudinal joint

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules **240.4 lb sq in**

End plates in steam space: Material **S.M. Steel** Tensile strength **26-30 lb sq in** Thickness **1 5/16"** Pitch of stays **20" x 20"**

How are stays secured **Double nut washers outside (124 days)** Working pressure by Rules **229 lb sq in**

Tube plates: Material {front **S.M. Steel** back **S.M. Steel** Tensile strength {front **26-30 lb sq in** back **26-30 lb sq in** Thickness {front **15/16"** back **13/16"**

Mean pitch of stay tubes in nests **10 1/4"** Pitch across wide water spaces **14"** Working pressure {front **304 lb sq in** back **226 lb sq in**

Girders to combustion chamber tops: Material **S.M. Steel** Tensile strength **29-33 lb sq in** 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 in** Combustion chamber plates: Material **S.M. Steel**

Tensile strength **26-30 lb sq in** Thickness: Sides **3/4"** Back **25/32"** Top **3/4"** Bottom **7/8"**

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 in** Front plate at bottom: Material **S.M. Steel** Tensile strength **26-30 lb sq in**

Thickness **15/16"** Lower back plate: Material **S.M. Steel** Tensile strength **26-30 lb sq in** Thickness **7/8"**

Pitch of stays at wide water space **14" x 9"** Are stays fitted with nuts or riveted over **Nuts**

Working Pressure **226 lb sq in** Main stays: Material **S.M. Steel** Tensile strength **28-32 lb sq in**

Diameter {At body of stay, **3 5/8"** or **3 1/2"** No. of threads per inch **6** Area supported by each stay **441 sq in**

Working pressure by Rules **232 lb sq in** Screw stays: Material **S.M. Steel** Tensile strength **26-30 lb sq in**

Diameter {At turned off part, **1 7/8"** or **1 3/4"** No. of threads per inch **9** Area supported by each stay **92.8 sq in**

Working pressure by Rules $251 \text{ lbs } \frac{1}{2}$ 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 109.75 Working pressure by Rules $225 \text{ lbs } \frac{1}{2}$

Tubes: Material 3 rows External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right\} 3"$ Thickness $\left\{ \begin{array}{l} \text{S.L.S.S.} \\ \text{5/16" 3/8"} \end{array} \right\}$ No. of threads per inch 9

Pitch of tubes $11\frac{1}{4} \times 8\frac{1}{4}$ Working pressure by Rules $254 \text{ lbs } \frac{1}{2}$ Manhole compensation: Size of opening in shell plate 16×12 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

How connected to shell Inner radius of crown Working pressure by Rules

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 $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right\}$ See approved plans & certificates of tests.

Number of elements 68 Material of tubes S.D. Steel Internal diameter and thickness of tubes $16\frac{1}{4} \times 2.5\frac{1}{16}$

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 Are the safety valves fitted with easing gear Working pressure as per Rules $220 \text{ lbs } \frac{1}{2}$ Pressure to which the safety valves are adjusted $225 \text{ lbs } \frac{1}{2}$ Hydraulic test pressure: tubes $1000 \text{ lbs } \frac{1}{2}$ forgings and castings $660 \text{ lbs } \frac{1}{2}$ and after assembly in place $450 \text{ lbs } \frac{1}{2}$ 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,
J. H. Matthews Manufacturer.
 CHAIRMAN & MANAGING DIRECTOR

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right\}$ See Machinery Report 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. SHAHKRISTAN. 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 ... £ See Machinery Report When applied for, 19

Travelling Expenses (if any) £ : : 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.



2. Generator Test Sheet