

# REPORT ON BOILERS.

Received at London Office 31 JAN 1942

Date of writing Report 10 When handed in at Local Office 29/1/1942 Port of NEWCASTLE-ON-TYNE

No. in Survey held at South Shields Reg. Book. Date, First Survey 24 June 1941. Last Survey 14 Jan 1942

6376 on the S.S. EMPIRE SQUIRE (Number of Visits) Gross 7043.55 Tons Net 4966.55

Master Built at S. Shields By whom built J. Readhead Sons Ltd Yard No. 525 When built 1942

Engines made at South Shields By whom made J. Readhead Sons Ltd Engine No. 525 When made 1942

Boilers made at South Shields By whom made J. Readhead Sons Ltd Boiler No. 525 When made 1942

Nominal Horse Power Owners Ministry of War Transport Port belonging to S. Shields

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

Manufacturers of Steel The Steel Company of Scotland Ltd (Letter for Record S)

Total Heating Surface of Boilers 7248 sq ft Is forced draught fitted Yes Coal or Oil fired Coal

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

Tested by hydraulic pressure to 380 lbs sq in Date of test 3-3-10-41 No. of Certificate S-915 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 54.67 sq ft No. and Description of safety valves to each boiler 2 Double spring loaded impulse H.L.

Area of each set of valves per boiler per Rule 6.425 sq in as fitted 7.94 sq in Pressure to which they are adjusted 220 lbs 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 Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2-10" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 2-0 1/4" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 15-0 1/4" Length 11-6" Shell plates: Material S.M. Steel Tensile strength 29-33 Tons sq in

Thickness 1 1/2" Are the shell plates welded or flanged Yes Description of riveting: circ. seams end D.R.L.J. inter. Yes

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 4.07" 10 3/8"

Percentage of strength of circ. end seams plate 63.1 rivets 46.8 Percentage of strength of circ. intermediate seam plate rivets Yes

Percentage of strength of longitudinal joint plate 85.5 rivets 86.0 combined 88.3 Working pressure of shell by Rules As approved

Thickness of butt straps outer 1 1/8" inner 1 1/4" No. and Description of Furnaces in each Boiler 3 Deighton Type

Material S.M. Steel Tensile strength 26-30 Tons sq in Smallest outside diameter 45 1/2"

Length of plain part top bottom Thickness of plates crown bottom 1 1/2" 1 1/4" Description of longitudinal joint Yes

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules Yes

End plates in steam space: Material S.M. Steel Tensile strength 26-30 Tons sq in Thickness 1 3/32" Pitch of stays 20" x 21"

How are stays secured Double nuts Working pressure by Rules Yes

Tube plates: Material front S.M. Steel back S.M. Steel Tensile strength 26-30 Tons sq in Thickness 15/16" 25/32"

Mean pitch of stay tubes in nests 9 3/4" Pitch across wide water spaces 14" Working pressure front back Yes

Girders to combustion chamber tops: Material S.M. Steel Tensile strength 28-32 Tons sq in Depth and thickness of girder

at centre 10 1/2" x 1 3/8" Length as per Rule 2-9 1/32" Distance apart 9 1/4" No. and pitch of stays

in each 328 Working pressure by Rules Yes Combustion chamber plates: Material S.M. Steel

Tensile strength 26-30 Tons sq in Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 1 3/16"

Pitch of stays to ditto: Sides 9 1/4" x 8" Back 9 1/4" x 8" Top 9 1/4" x 8" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules Yes Front plate at bottom: Material S.M. Steel Tensile strength 26-30 Tons sq in

Thickness 15/16" Lower back plate: Material S.M. Steel Tensile strength 26-30 Tons sq in Thickness 27/32"

Pitch of stays at wide water space 14" x 8" Are stays fitted with nuts or riveted over Nuts

Working Pressure Yes Main stays: Material S.M. Steel Tensile strength 28-32 Tons sq in

Diameter At body of stay, or Over threads 3 1/2" No. of threads per inch 6 Area supported by each stay 420 sq in

Working pressure by Rules Yes Screw stays: Material S.M. Steel Tensile strength 26-30 Tons sq in

Diameter At turned off part, or Over threads 1 3/4" No. of threads per inch 9 Area supported by each stay 74 sq in

Is a Report also sent on the Hull of the Ship?



Working pressure by Rules  Are the stays drilled at the outer ends  Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads.} \end{array} \right\} 1\frac{1}{8}''$

No. of threads per inch 9 Area supported by each stay 930" Working pressure by Rules

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

Pitch of tubes  $11\frac{1}{4}'' \times 8\frac{1}{4}''$  Working pressure by Rules

Shell plate 16 x 12 Section of compensating ring  Manhole compensation: Size of opening in

Outer row rivet pitch at ends  Depth of flange if manhole flanged  No. of rivets and diameter of rivet holes

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  $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right\}$  \_\_\_\_\_

Number of elements \_\_\_\_\_ Material of tubes \_\_\_\_\_ Internal diameter and thickness of tubes \_\_\_\_\_

Material of headers \_\_\_\_\_ Tensile strength \_\_\_\_\_ Thickness \_\_\_\_\_

the boiler be worked separately \_\_\_\_\_ Is a safety valve fitted to every part of the superheater which can be shut off and

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 \_\_\_\_\_ forgings and 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  FOR JOHN READHEAD & SONS LTD.

The foregoing is a correct description,  
*W. H. Matthews* MANAGING DIRECTOR  
 Manufacturer. *J. H. V.*

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

Are the approved plans of boiler and superheater forwarded herewith  9-1-41  
 (If not state date of approval.)

Total No. of visits \_\_\_\_\_

Is this Boiler a duplicate of a previous case  No If so, state Vessel's name and Report No. \_\_\_\_\_

**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 ... .. £ \_\_\_\_\_ When applied for, 10  
 Travelling Expenses (if any) £ *See Machinery Report* \_\_\_\_\_ When received, 10

*J. H. Matthews*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 10 FEB 1942

Assigned *See Nav. 76 100/32*

