

pt. 5a.

# REPORT ON BOILERS.

No. 88698

Received at London Office

4 JUN 1932

Date of writing Report

19

When handed in at Local Office

13 JUN 1932

Port of

NEWCASTLE-on-TYNE

No. in Survey held at

g. Book.

Newcastle-on-Tyne

Date, First Survey

9 Feb.

Last Survey

24 May 1932

on the

S.S. "ZENDA"

(Number of Visits)

Gross 1415.64  
Net 796.70

Master

Built at Wallsend

By whom built

Swan Hunter & Wigham Richardson Ltd. Yagd No. 1477

When built 1932

Engines made at

Newcastle

By whom made

"

"

Engine No. 1428

When made 1932

Boilers made at

"

By whom made

"

"

Boiler No. 1428

When made 1932

Nominal Horse Power

128

Owners The Zenda Shipping Co. Ltd.

Port belonging to

Newcastle

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

Manufacturers of Steel

Cobville Ltd. Glasgow

(Letter for Record S)

Total Heating Surface of Boilers

2358 sq ft

Is forced draught fitted

No

Coal or Oil fired

COAL

No. and Description of Boilers

TWO SINGLE ENDED

Working Pressure 180 LBS.

Tested by hydraulic pressure to

320 LBS.

Date of test 15/4/32

No. of Certificate 575

Can each boiler be worked separately YES

Area of Firegrate in each Boiler

30.5 sq ft

No. and Description of safety valves to each boiler TWO SPRING LOADED COCKBURN'S HIGH LIFT TYPE

Area of each set of valves per boiler

per Rule 3.78  
as fitted 4.8

Pressure to which they are adjusted 180 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

1' 0"

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

11' 4 3/16"

Length 10' 6"

Shell plates: Material STEEL

Tensile strength 30.34 TONS

Thickness

29/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end DR. L.

long. seams TR, DBS.

Diameter of rivet holes in

circ. seams 1 1/16"  
long. seams 15/16"

Pitch of rivets

3 3/4"  
6 7/16"

Percentage of strength of circ. end seams

plate 69.6  
rivets 42.8

Percentage of strength of circ. intermediate seam

plate  
rivets

Percentage of strength of longitudinal joint

plate 85.4  
rivets 85.0  
combined 87.8

Working pressure of shell by Rules 183 LBS.

Thickness of butt straps

outer 1 1/16"  
inner 13/16"

No. and Description of Furnaces in each Boiler

TWO DEIGHTON SECTION

Material

STEEL

Tensile strength

26 - 30 TONS

Smallest outside diameter 3' 3 3/8"

Length of plain part

top 8 3/4"  
bottom "

Thickness of plates

crowns 1/2"  
bottom 1/2"

Description of longitudinal joint

WELD

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

Working pressure of furnace by Rules 184 LBS.

End plates in steam space: Material

STEEL

Tensile strength 26 - 30 TONS

Thickness 15/16"

Pitch of stays 15 1/4" x 14 1/2"

How are stays secured

DOUBLE NUTS

Working pressure by Rules 182 LBS.

Tube plates: Material

front STEEL  
back "

Tensile strength

26 - 30 TONS

Thickness

15/16"  
13/16"

Mean pitch of stay tubes in nests

11 7/16"

Pitch across wide water spaces

1' 2 1/4"

Working pressure

front 186 LBS.  
back 194 "

Girders to combustion chamber tops: Material

STEEL

Tensile strength 28 - 32 TONS

Depth and thickness of girder

at centre

8 1/2" x 1 1/4"

Length as per Rule

2' 6 17/32"

Distance apart

9'

No. and pitch of stays

in each

2 @ 9 1/2"

Working pressure by Rules 185 LBS.

Combustion chamber plates: Material STEEL

Tensile strength

26 - 30 TONS

Thickness: Sides 1 1/16"

Back 2 1/32"

Top 1 1/16"

Bottom 1 1/16"

Pitch of stays to ditto: Sides

8 3/4" x 9 1/2"

Back 8 7/8" x 9 1/4"

Top 9" x 9 1/2"

Are stays fitted with nuts or riveted over NUTS

Working pressure by Rules 182 LBS.

Front plate at bottom: Material STEEL

Tensile strength 26 - 30 TONS

Thickness

15/16"

Lower back plate: Material STEEL

Tensile strength 26 - 30 TONS

Thickness 15/16"

Pitch of stays at wide water space

8 3/8" x 15 1/2"

Are stays fitted with nuts or riveted over

NUTS

Working Pressure 226 LBS.

Main stays: Material STEEL

Tensile strength 28 - 32 TONS

Diameter

At body of stay, 2 1/2"  
Over threads

No. of threads per inch 6

Area supported by each stay 233 sq in

Working pressure by Rules 190 LBS.

Screw stays: Material STEEL

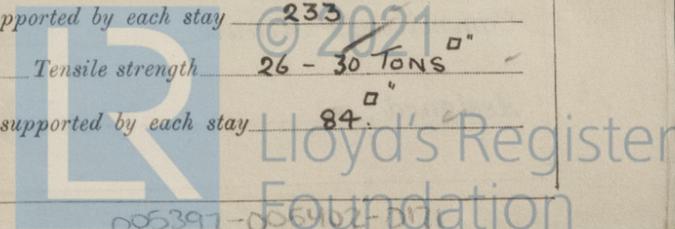
Tensile strength 26 - 30 TONS

Diameter

At turned off part, 1 5/8"  
Over threads

No. of threads per inch 9

Area supported by each stay 84 sq in



Working pressure by Rules 181 LBS. Are the stays drilled at the outer ends No Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \frac{3}{4}$ "  
 No. of threads per inch 9 Area supported by each stay 99 Working pressure by Rules 183 LBS.  
**Tubes:** Material STEEL External diameter  $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \frac{3}{4}$ " Thickness  $\left\{ \begin{array}{l} \text{9 W.G.} \\ \frac{5}{16} \end{array} \right.$  No. of threads per inch 9  
 Pitch of tubes 4 1/2" x 4 3/4" Working pressure by Rules 180 LBS. **Manhole compensation:** Size of opening  
 shell plate 16" x 20" Section of compensating ring 3' 0 1/2" x 2' 8 1/2" x 29/32" No. of rivets and diameter of rivet holes 32 @ 1 1/4"  
 Outer row rivet pitch at ends 8 3/4" Depth of flange if manhole flanged 2 1/2" **Steam Dome:** Material ✓  
 Tensile strength ✓ Thickness of shell ✓ Description of longitudinal joint ✓  
 Diameter of rivet holes ✓ Pitch of rivets ✓ Percentage of strength of joint  $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \frac{1}{2}$   
 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** ✓ Manufacturers of  $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right. \frac{1}{2}$   
 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,  
 SWAN, HUNTER & WIGHAM RICHARDSON, LTD. Manufacturers

Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops} \end{array} \right. \frac{1}{2}$  Are the approved plans of boiler and superheater forwarded herewith Yes  
 while building  $\left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel} \end{array} \right. \frac{1}{2}$  (If not state date of approval.)  
 See Mach Report Total No. of visits 2

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

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) These boilers have been built under Special Survey, the materials and workmanship are good.

Survey Fee ... £ See Mach Report : : When applied for, 19  
 Travelling Expenses (if any) £ : : When received, 19

Thomas Napier  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 10 JUN 1932

Assigned See F.O. Rpt.

