

## REPORT ON BOILERS.

No. 78729

Received at London Office

15 JAN 1925

of writing Report

192

When handed in at Local Office

192

Port of

NEWCASTLE-ON-TYNE

in  
Book.

Survey held at Newcastle-on-Tyne

Date, First Survey 7<sup>th</sup> MayLast Survey 2<sup>nd</sup> January 1925

(Number of Visits)

(Gross

Tons

Net

on the CITY OF MANDALAY

Built at Newcastle

By whom built Swan Hunter &amp; Wigham

Yard No. 1253

When built 1925

Engines made at Newcastle

By whom made Walkend Slipway &amp; Engineering Co. Ltd.

Engine No. 855

When made 1925

Boilers made at Newcastle

By whom made Walkend Slipway &amp; Engineering Co. Ltd.

Boiler No. 855

When made 1925

Nominal Horse Power 644

Owners Ellerman Bros. Ltd.

Port belonging to Glasgow

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

Manufacturers of Steel

D. A. Colville &amp; Sons Ltd.

(Letter for Record S)

Total Heating Surface of Boilers

9069 sq ft

Is forced draught fitted

Yes

Coal or Oil fired Both

and Description of Boilers

Three single-ended cylindrical

Working Pressure 225 lbs

Tested by hydraulic pressure to

388 lbs

Date of test 11.9.24

No. of Certificate 9855

Can each boiler be worked separately Yes

Area of Firegrate in each Boiler

76 sq ft

No. and Description of safety valves to each boiler

Two spring-loaded Cockburn's High-Lift

Area of each set of valves per boiler

per Rule 18.9 x 3 = 12.6 sq ft

as fitted 14.13 sq ft

Pressure to which they are adjusted

225 lbs

Are they fitted with easing gear Yes

Use of donkey boilers, state whether steam from main boilers can enter the donkey boiler

No. Donkey Boilers

Smallest distance between boilers or uptakes and bunkers or woodwork

20"

Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating

22"

Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers

197 29/32"

Length 12'-7"

Shell plates: Material

Steel

Tensile strength 30-34 tons

Thickness

1 13/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end Double

Pitch of rivets

Double. D.B.S.

Diameter of rivet holes in

circ. seams 1 5/8"

long. seams 1 5/8"

Pitch of rivets

4.47"

10 5/8"

Percentage of strength of circ. end seams

plate 63.5

rivets 44.5

Percentage of strength of circ. intermediate seam

plate

rivets

Percentage of strength of longitudinal joint

plate 84.7

rivets 87.7

combined 86.75

Working pressure of shell by Rules

228 lbs

Thickness of butt straps

outer 1 3/8"

inner 1 3/8"

No. and Description of Furnaces in each Boiler

Four Deighton

Material

Steel

Tensile strength

26-30 tons

Smallest outside diameter

44 3/4"

Length of plain part

top

Thickness of plates

crown 2 1/2"

bottom 3/32"

Description of longitudinal joint

Weld.

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

Working pressure of furnace by Rules

229 lbs

Stays in steam space: Material

Steel

Tensile strength

26-30 tons

Thickness

1 1/4"

Pitch of stays 20" x 15 1/2"

How are stays secured

Double nuts

Working pressure by Rules

233 lbs

Stays in steam space: Material

front Steel

back Steel

Tensile strength

26-30 tons

26-30 tons

Thickness

1" x 1 1/4"

13/16" Centre 27/32" Tring.

Can pitch of stay tubes in nests

9 27/32"

Pitch across wide water spaces

13 3/4"

Working pressure

front 243 lbs

back 245 lbs

Girders to combustion chamber tops: Material

Steel

Tensile strength 28-32 tons

Depth and thickness of girder

Centre

10 1/2" x 1 1/2"

Length as per Rule

38 5/16"

Distance apart

7 3/4"

No. and pitch of stays

Each

3-9 7/8"

Working pressure by Rules

227 lbs

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons

Thickness: Sides

11/16"

Back

11/16"

Top

11/16"

Bottom

27/32"

Pitch of stays to ditto: Sides

7 7/8" x 9 7/8"

Back

8 1/2" x 8 1/2"

Top

7 3/4" x 9 7/8"

Are stays fitted with nuts or riveted over

Nuts

Working pressure by Rules

227 lbs

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons

Thickness

1"

Lower back plate: Material

Steel

Tensile strength

26-30 tons

Thickness

1 5/16"

Pitch of stays at wide water space

14 1/2"

Are stays fitted with nuts or riveted over

Nuts

Working Pressure

247 lbs

Main stays: Material

Steel

Tensile strength

28-32 tons

Diameter

At body of stay,

3 1/4"

Over threads

No. of threads per inch

Six

Area supported by each stay

305 sq in

Working pressure by Rules

251 lbs

Screw stays: Material

Steel

Tensile strength

26-30 tons

Diameter

At turned off part,

1 3/4"

Over threads

No. of threads per inch

Nine

Area supported by each stay

71.86 sq in

W453-0138

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Foundation



Working pressure by Rules 252 lbs Are the stays drilled at the outer ends Yes Margin stays: Diameter { At turned off part, or Over threads 2" ✓  
 No. of threads per inch nine Area supported by each stay 97.75 sq" Working pressure by Rules 253 lbs  
 Tubes: Material 2m External diameter { Plain 3" ✓ Stay 3" ✓ Thickness { No. 8 W.G. ✓ No. of threads per inch nine ✓  
 Pitch of tubes 4 1/4" x 4 3/16" x 4 7/16" Working pressure by Rules plain 250 lbs Stay 242 lbs Manhole compensation: Size of opening in shell plate 19" x 15" Section of compensating ring 37 1/2" x 35 1/2" x 1 1/2" No. of rivets and diameter of rivet holes 36 - 1 5/8" ✓  
 Outer row rivet pitch at ends 10 5/8" Depth of flange if manhole flanged 3 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 { Plate \_\_\_\_\_ Rivets \_\_\_\_\_  
 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 North Eastern Marine Eng. Co. Manufacturers of Tubes Mild Steel Tube Co. Ltd.  
 Number of elements 58 per Boiler Material of tubes 2D Steel ✓ Steel castings \_\_\_\_\_  
 Material of headers Angled Angot Steel Tensile strength 26-30 tons ✓ Internal diameter and thickness of tubes 2" dia ✓  
 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 2.44 sq" ✓ Are the safety valves fitted with easing gear Yes ✓ Working pressure as per Rules 225 lbs ✓ Pressure to which the safety valves are adjusted 235 lbs ✓ Hydraulic test pressure: tubes 1500 lbs ✓ castings 675 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 23 inclusive for boilers been complied with Yes ✓

The foregoing is a correct description,

Manufacturer.

Dates { During progress of work in shops - - }  
 of Survey while building { During erection on board vessel - - }

See Machinery Report.

Are the approved plans of boiler and superheater forwarded herewith (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. The materials and workmanship are sound & good. They were subjected to a satisfactory hydraulic pressure test. They are efficiently installed on board the vessel and the safety valves were adjusted under steam.

The Superheaters were examined during manufacture & were subsequently examined under hydraulic test after being installed and were examined under steam.

These Boilers are fitted with the Hardden - Livingston Air Reheaters (Two)

Survey Fee ... .. £

Travelling Expenses (if any) £

When applied for.

192

When received.

192

R. Lee Amess.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 20 JAN 1925

Assigned



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