

## REPORT ON BOILERS.

No. 30637

Received at London Office

15 MAY 1931

Date of writing Report

1931

When handed in at Local Office

14 MAY 1931

Port of *Sunderland*

No. in Survey held at

*Sunderland*

Date, First Survey

Last Survey

*May 4 1931*

Reg. Book.

on the

*S. S. "BENEFICENT"*

(Number of Visits

Gross *2944*

Tons

Net *1574*

Master

Built at

*Sunderland*

By whom built

*Wm. Pickering & Son*

Yard No.

*231*

When built

*1931*

Engines made at

*Sunderland*

By whom made

*George Rank Ltd.*

Engine No.

*1192*

When made

*1931*

Boilers made at

*Do*

By whom made

*Do*

Boiler No.

*1192*

When made

*1931*

Nominal Horse Power

*277*

Owners

*Westall Steamship Co. Ltd.*

Port belonging to

*Sunderland*

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

*Veininger Stahlwerke, Essen, Works, Mulheim Ruhr*

(Letter for Record

*S*

Total Heating Surface of Boilers

*4488 sq ft*

Is forced draught fitted

*No*

Coal or Oil fired

*Coal*

No. and Description of Boilers

*Two 6 ft. 6 in. S.E. 2 S.E.*

Working Pressure

*180 lbs.*

Tested by hydraulic pressure to

*320 lbs.*

Date of test

*10/3/31*

No. of Certificate

*4131*

Can each boiler be worked separately

*Yes*

Area of Firegrate in each Boiler

*63 sq ft*

No. and Description of safety valves to each boiler

*2 spring loaded lock burst high lift*

Area of each set of valves per boiler

*per Rule 14.6-2 = 7.3 sq ft*

Pressure to which they are adjusted

*185 lbs.*

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

Is oil fuel carried in the double bottom under boilers

*No*

Smallest distance between shell of boiler and tank top plating

*3'-0"*

Is the bottom of the boiler insulated

*Yes*

Largest internal dia. of boilers

*15'-2 7/8"*

Length

*10'-9"*

Shell plates: Material

*Steel*

Tensile strength

*29 to 33 tons*

Thickness

*1 1/2"*

Are the shell plates welded or flanged

*Yes*

Description of riveting: circ. seams

*end D.R.L.*

Long. seams

*TR. D.B.S.*

Diameter of rivet holes in

*circ. seams 1 3/16"**long. seams 1 1/4"*

Pitch of rivets

*3 7/8" 3 1/2" 8 3/8"*

Percentage of strength of circ. end seams

*plate 65.6%*

Percentage of strength of circ. intermediate seam

*plate 64%*

Percentage of strength of longitudinal joint

*plate 85.5%*

Working pressure of shell by Rules

*182 lbs.*

Thickness of butt straps

*outer 1 5/8"**inner 1 1/8"*

No. and Description of Furnaces in each Boiler

*3 Heighway Con. 3 ft*

Material

*Steel*

Tensile strength

*26-30 tons*

Smallest outside diameter

*45 1/2"*

Length of plain part

*top 1"**bottom 1"*

Thickness of plates

*top 3/4"**bottom 5/8"*

Description of longitudinal joint

*Welded*

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

Working pressure of furnace by Rules

*183 lbs.*

End plates in steam space: Material

*Steel*

Tensile strength

*26 to 30 tons*

Thickness

*1 1/2"*

Pitch of stays

*21" x 19 3/8"*

How are stays secured

*DN & WS*

Working pressure by Rules

*187 lbs.*

Tube plates: Material

*front Steel**back Steel*

Tensile strength

*26 to 30 tons*

Thickness

*1 1/8" 3/4"*

Mean pitch of stay tubes in nests

*10 3/8"*

Pitch across wide water spaces

*14 1/4" x 9"*

Working pressure

*front 181 lbs.**back 186 "*

Girders to combustion chamber tops: Material

*Steel*

Tensile strength

*29 to 33 tons*

Depth and thickness of girder

At centre

*8" x 13 1/4"*

Length as per Rule

*33 5/8"*

Distance apart

*9 1/2"*

No. and pitch of stays

At each

*2 x 10"*

Working pressure by Rules

*182 lbs.*

Combustion chamber plates: Material

*Steel*

Tensile strength

*26 to 30 tons*

Thickness: Sides

*23 1/2"*

Back

*4 1/8"*

Top

*23 1/2"*

Bottom

*23 1/2"*

At stays to ditto: Sides

*10" x 10"*

Back

*10 1/8" x 9 1/2"*

Top

*10" x 9 1/2"*

Are stays fitted with nuts or riveted over

*NUTS*

Working pressure by Rules

*180 lbs.*

Front plate at bottom: Material

*Steel*

Tensile strength

*26 to 30 tons*

Thickness

*1 1/8"*

Lower back plate: Material

*Steel*

Tensile strength

*26 to 30 tons*

Thickness

*1 1/8"*

Pitch of stays at wide water space

*16 1/4" x 9 1/8"*

Are stays fitted with nuts or riveted over

*MARGIN NUTS CENTRE RIVETTED*

Working Pressure

*197 lbs.*

Main stays: Material

*Steel*

Tensile strength

*28 to 32 tons*

Diameter

*At body of stay, 2 7/8"**Over threads, 3 1/4"*

No. of threads per inch

*6*

Area supported by each stay

*18" x 22"*

Working pressure by Rules

*180 lbs.*

Screw stays: Material

*Steel*

Tensile strength

*26 to 30 tons*

Diameter

*At turned off part, 1 3/4"**Over threads, 1 3/4"*

No. of threads per inch

*9*

Area supported by each stay

*10" x 10"*



Working pressure by Rules  $180^{185}$  Are the stays drilled at the outer ends *No* Margin stays: Diameter *At turned off part, 1 1/8" or Over threads 1 1/8" x 2 1/8"*  
 No. of threads per inch *9* Area supported by each stay  $11 5/8" \times 9 1/8"$  Working pressure by Rules  $180^{185}$   
 Tubes: Material *S. D. Steel* External diameter *Plain 3 1/4" Stay 3 1/4"* Thickness *168 W.G. 1/4, 5/16, 3/8"* No. of threads per inch *9*  
 Pitch of tubes  $4 1/2" \times 4 1/2" \times 4 3/8"$  Working pressure by Rules  $205^{210}$  Manhole compensation: Size of opening in  
 shell plate  $16 \times 12$  Section of compensating ring *-* No. of rivets and diameter of rivet holes *-*  
 Outer row rivet pitch at ends *-* Depth of flange if manhole flanged  $3 1/8"$  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 *-* Manufacturers of *Tubes - Steel castings -*  
 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.

*G. M. M. M.* Manufacturer.

Dates of Survey *During progress of work in shops - -* Please see *Mch. Rpt.* Are the approved plans of boiler and superheater forwarded herewith  
 while building *During erection on board vessel - - -* (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 built under Special Survey & the materials & workmanship are good. At completion the boilers were satisfactorily fitted in the vessel & the safety valves adjusted under steam. For notation see machinery report.*

Survey Fee ... .. £ : : When applied for, 192  
 Travelling Expenses (if any) £ : : When received, 192

*W. B. M.*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

WED. 27 MAY 1931

TUE. 20 OCT 1931

Assigned

*See F. B. Rpt.*



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Lloyd's Register Foundation

Rpt. 13.

RE

Date of writ

No. in Reg. Book.

89729

Built at

Owners

Electric L

Is the Vessel

System of

Pressure of

Direct or A

If alternating

Has the Auto

Generators,

are they over

Where more to

series with each

Are all termin

short circuited

Position of

is the ventilati

if situated ne

-

are their axes

Earthing, are

their respective

Main Switch

-

a fuse on each i

Switchboards,

are they protecte

woodwork or o

are they constru

permanently high

with mica or nic

and is the frame

*Yes*

bars *Yes*

Main Switchge

and down

fuses in

Instruments on

Earth Testing,

connected

Switches, Circu

Joint Boxes Se