

# REPORT ON BOILERS.

No. 60115

Received at London Office

Date of writing Report

19

When handed in at Local Office

27. 8. 1938

Port of Glasgow

No. in Reg. Book.

Glasgow

Date, First Survey

Last Survey

18-8-1938

(Number of Visits)

Gross 6199  
Net 3794

on the new steel S/S "SCIENTIST"

Master

Built at Port Glasgow

By whom built Lithgow & Co Ltd

Yard No. 911

When built 1938

Engines made at

Glasgow

By whom made

David Rowan & Co Ltd

Engine No. 1023

When made 1938

Boilers made at

Glasgow

By whom made

David Rowan & Co Ltd

Boiler No. 1023

When made 1938

Nominal Horse Power

867 (Incl. tank)

Owners

T & J. Harrison

Port belonging to

Liverpool

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

Manufacturers of Steel

Steel Co of Scotland Ltd & Co Ltd

(Letter for Record)

Total Heating Surface of Boilers

10400 sq ft

Is forced draught fitted

no

Coal or Oil fired

coal

No. and Description of Boilers

Two double ended

Working Pressure

215

Tested by hydraulic pressure to

373

Date of test

21-5-38

No. of Certificate

20195

Can each boiler be worked separately

yes

Area of Firegrate in each Boiler

137.9 sq ft

No. and Description of safety valves to each boiler

2 spring loaded - ordinary

Area of each set of valves per boiler

per Rule 28.26 sq in  
as fitted 28.36 sq in

Pressure to which they are adjusted

220

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

21"

Is oil fuel carried in the double bottom under boilers

no

Smallest distance between shell of boiler and tank top plating

2'-6"

Is the bottom of the boiler insulated

yes

Minimum

largest internal dia. of boilers

17'-2"

Length

18'-6"

Shell plates: Material

steel

Tensile strength

31-35 tons

Thickness

1 3/4" 1 3/4"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end

WR lap

Long. seams

TR WRB

Diameter of rivet holes in

circ. seams

F 1 1/8" C 1 1/8" B 1 1/8"

Pitch of rivets

F 3.7 C 4.658 B 4.656

Percentage of strength of circ. end seams

plate F 61.1 C 65 B 65  
rivets F 43 C 63.8 B 43.6

Percentage of strength of circ. intermediate seam

plate 65  
rivets 63.8

Percentage of strength of longitudinal joint

plate ends 84.83 centre 84.52  
rivets ends 88.4 centre 91.3  
combined ends 87.3 centre 87.4

Working pressure of shell by Rules

215

Thickness of butt straps

outer E 1 5/8" C 1 3/4"  
inner E 1 3/8" C 1 5/8"

No. and Description of Furnaces in each Boiler

Sin Deighton

Material

steel

Tensile strength

26-30 tons

Smallest outside diameter

54'-53"

Length of plain part

top

Thickness of plates

49" 64"

Description of longitudinal joint

welded

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

Working pressure of furnace by Rules

219

End plates in steam space: Material

steel

Tensile strength

26-30 tons

Thickness

1 1/2"

Pitch of stays

20 1/2" x 22 3/4"

How are stays secured

WR

Working pressure by Rules

216

End plates: Material

front steel  
back steel

Tensile strength

26-30 tons

Thickness

1 1/2"

Pitch of stay tubes in nests

12 3/16"

Pitch across wide water spaces

14 1/2"

Working pressure

front 227  
back 220

Orders to combustion chamber tops: Material

steel

Tensile strength

29-33 tons

Depth and thickness of girder

centre 2 @ 12 1/2" x 1 1/8"

Length as per Rule

47.875"

Distance apart

9 1/4"

No. and pitch of stays

each 4 @ 9 1/4"

Working pressure by Rules

224 219

Combustion chamber plates: Material

steel

Tensile strength

26-30 tons

Thickness: Sides

4 1/4"

Back

-

Top

4 1/4"

Bottom

1"

Pitch of stays to ditto: Sides

9 1/4" x 9 1/4"

Back

-

Top 9 1/4" x 9 1/4"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

222

Front plate at bottom: Material

steel

Tensile strength

26-30 tons

Thickness

1"

Lower back plate: Material

-

Tensile strength

-

Thickness

-

Pitch of stays at wide water space

-

Are stays fitted with nuts or riveted over

-

Working Pressure

-

Main stays: Material

steel

Tensile strength

28-32 tons

Diameter

At body of stay, 3 1/2" x 3/4"  
Over threads

No. of threads per inch

6

Area supported by each stay

482" & 416"

Working pressure by Rules

225 & 223

Screw stays: Material

iron

Tensile strength

21 1/2 tons

Diameter

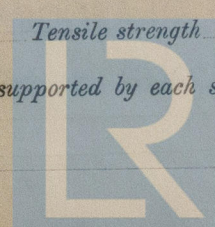
At turned off part, 1 3/4"  
Over threads

No. of threads per inch

9

Area supported by each stay

83-1"





Working pressure by Rules **218** Are the stays drilled at the outer ends ☒ Margin stays: Diameter { At turned off part, ☒ or Over threads ☒ Working pressure by Rules **9**

No. of threads per inch **7 W.S.** Area supported by each stay **3 1/2** Thickness { **7 W.S.** No. of threads per inch **9**

Tubes: Material **Iron** External diameter { Plain **3 1/2** Stay **3 1/2** Manhole compensation: Size of opening **9**

Pitch of tubes **4 1/8" 4 1/8"** Working pressure by Rules **260** No. of rivets and diameter of rivet holes **36 @ 1 7/8"**

shell plate **16 x 20** Section of compensating ring **11 3/4 x 1 3/4** Steam Dome: Material **Iron**

Outer row rivet pitch at ends **10 23/32** Depth of flange if manhole flanged **3/4"** Description of longitudinal joint

Tensile strength Thickness of shell Percentage of strength of joint { Plate Rivets

Diameter of rivet holes Pitch of rivets Thickness of crown No. and diameter

Internal diameter Working pressure by Rules Working pressure by Rules Diameter of rivet holes and pitch

stays Inner radius of crown Size of doubling plate under dome

How connected to shell

of rivets in outer row in dome connection to shell

Type of Superheater **Smoke tube (sugden)** Manufacturers of

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

Material of headers Tensile strength Can the superheater be shut off

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

Area of each safety valve **1.76 sq"** Are the safety valves fitted with easing gear **yes** Working pressure as per

Rules Pressure to which the safety valves are adjusted **223** Hydraulic test pressure

tubes forgings and castings and after assembly in place **A30** Are drain cocks

valves fitted to free the superheater from water where necessary **yes**

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with **yes**

The foregoing is a correct description.  
For David Rowan & Co. Ltd.  
Arch. H. Grierson

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

SEE ACCOMPANYING MACHINERY REPORT.

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) **yes**

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 materials and workmanship are good.  
The boilers have been constructed under special survey, satisfactorily fitted in the vessel and their safety valves adjusted under steam.

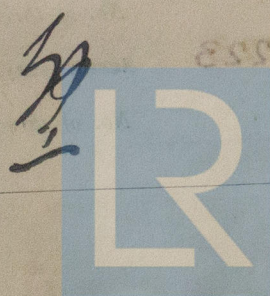
Survey Fee ... £  
Travelling Expenses (if any) £

When applied for, 19  
When received, 19

Committee's Minute **GLASGOW 30 AUG 1938**

Assigned

SEE ACCOMPANYING MACHINERY REPORT.



© 2020

Lloyd's Register Foundation