

## REPORT ON BOILERS.

No. 60115

Received at London Office

AUG 22 1938

Date of writing Report

19

When handed in at Local Office

27. 8. 1938

Port of

Glasgow

opening

No. in Reg. Book.

Survey held at

Glasgow

Date, First Survey

Last Survey

18-8-1938

(Number of Visits

Gross

6199

Tons

Net

3794

on the new steel

S/S "SCIENTIST"

Master

Built at

Port Glasgow

By whom built

Lithgows Ltd

Yard No. 911

When built 1938

Engines made at

Glasgow

By whom made

David Rowan &amp; Co Ltd

Engine No. 1023

When made 1938

Boilers made at

Glasgow

By whom made

David Rowan &amp; Co Ltd

Boiler No. 1023

When made 1938

Nominal Horse Power

867

Owners

T &amp; J. Harrison

Port belonging to

Liverpool

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

Manufacturers of Steel Steel: of Scotland &amp; Co Ltd

(Letter for Record

r

Total Heating Surface of Boilers

2805 sq ft

Is forced draught fitted

no

Coal or Oil fired

coal

Working Pressure

215

No. and Description of Boilers

one single ended

Tested by hydraulic pressure to

373 lb

Date of test

27-5-38

No. of Certificate

20199

Can each boiler be worked separately

—

Area of Firegrate in each Boiler

69 sq ft

No. and Description of safety valves to each boiler

two spring loaded (ordinary)

Area of each set of valves per boiler

per Rule

15.244 sq ft

as fitted

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

2'-3"

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

12'-0"

Shell plates: Material

S

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

DR lap

inter.

TR lap

Pitch of rivets

F 1 7/8"

C 1 7/8"

B 1 7/8"

F 3.7"

C 4.658"

B 4.658"

F 10 23/32"

C 10 23/32"

B 10 23/32"

Percentage of strength of circ. end seams

plate

F 61.1

B 65

rivets

F 43

B 43.6

Percentage of strength of circ. intermediate seam

plate

65

rivets

63.8

Percentage of strength of longitudinal joint

plate

F 84.83

B 84.52

rivets

F 88.4

B 91.3

combined

F 87.3

B 87.4

Working pressure of shell by Rules

216

Thickness of butt straps

outer

B 1 3/16"

F 1 3/32"

inner

B 1 7/16"

F 1 3/32"

No. and Description of Furnaces in each Boiler

Three Weighston

Material

steel

Tensile strength

26-30 tons

Smallest outside diameter

4'-3 1/2"

Length of plain part

top

bottom

Thickness of plates

crown

4 9/16"

bottom

6 1/4"

Description of longitudinal joint

welded

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

none

Working pressure of furnace by Rules

218

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

DN

Working pressure by Rules

216

Side plates: Material

front

steel

back

Tensile strength

26-30 tons

Thickness

1 7/16"

Lean pitch of stay tubes in nests

12 3/16"

Pitch across wide water spaces

14 1/2"

Working pressure

front

226

back

215

Orders to combustion chamber tops: Material

steel

Tensile strength

29-33 tons

Depth and thickness of girder

Centre

2 @ 11" x 7/8"

Length as per Rule

3'-5 7/32"

Distance apart

9 1/4"

No. and pitch of stays

Each

4 @ 8 1/2"

Working pressure by Rules

215

Combustion chamber plates: Material

steel

Tensile strength

26-30 tons

Thickness: Sides

2 3/32"

Back

2 3/32"

Top

2 3/32"

Bottom

1"

Pitch of stays to ditto: Sides

8 1/2" x 9 1/4"

Back

10 1/4" x 8"

Top

8 1/2" x 9 1/4"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

215

Front plate at bottom: Material

steel

Tensile strength

26-30 tons

Thickness

1"

Lower back plate: Material

steel

Tensile strength

26-30 tons

Thickness

2 3/32"

Pitch of stays at wide water space

15 7/8"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

219

Main stays: Material

steel

Tensile strength

28-32 tons

Register of Shipping

At body of stay,

or

Over threads

3 1/2"

3 1/4"

No. of threads per inch

6

Area supported by each stay

482 sq in &amp; 416 sq in

Working pressure by Rules

225 &amp; 223

Screw stays: Material

Iron

Tensile strength

21 1/2 tons

At turned off part,

or

Over threads

1 3/4"

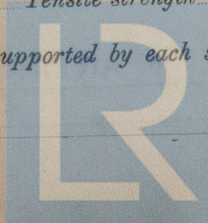
2"

No. of threads per inch

9

Area supported by each stay

84 sq in &amp; 97.5 sq in

Lloyd's Register  
1077-0014



Working pressure by Rules **222 & 218** Are the stays drilled at the outer ends **no** Margin stays: Diameter { At turned off part, or Over threads **2" x 2 1/4"**  
No. of threads per inch **9** Area supported by each stay **97.5** Working pressure by Rules **218**  
Tubes: Material **Iron** External diameter { Plain **3 1/2"** Thickness **7/16** No. of threads per inch **9**  
Pitch of tubes **4 7/8 x 4 7/8"** Working pressure by Rules **260** Manhole compensation: Size of opening  
shell plate **16 x 20** Section of compensating ring **11 3/4 x 1 3/4** No. of rivets and diameter of rivet holes **36 @ 1 7/8"**  
Outer row rivet pitch at ends **10 3/32"** Depth of flange if manhole flanged **3 1/4"** Steam Dome: Material **none**  
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  
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 **Smoke tube (Sugden)** Manufacturers of { Tubes For particulars see Gl. Rev. No. 3612 Steel forgings Cop. attached 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 from the boiler  
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 **1.760"** Are the safety valves fitted with easing gear **yes** Working pressure as per Rules  
Rules Pressure to which the safety valves are adjusted **223** Hydraulic test pressure  
tubes forgings and castings and after assembly in place **430 lb** 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, R.D. & Co. Manufacturers**  
**Arch. H. Grierson**

Dates of Survey { During progress of work in shops - - } Are the approved plans of boiler and superheater forwarded herewith **yes**  
while building { During erection on board vessel - - } (If not state date of approval.)  
**SEE ACCOMPANYING MACHINERY REPORT.**  
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 materials and workmanship are good.  
The boiler has been constructed under Special Survey, satisfactorily fitted in the vessel and its safety valves adjusted under steam.

**Ref**  
**24/8/38**

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

**W. Davis**

Engineer Surveyor to Lloyd's Register of Shipping

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

Assigned **SEE ACCOMPANYING MACHINERY REPORT**