

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

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 & 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

Owners

T & J. Harrison

Port belonging to

Liverpool

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Steel Co. of Scotland & Bohillies Ltd

(Letter for Record)

r

Total Heating Surface of Boilers

2805 sq ft

Is forced draught fitted

no

Coal or Oil fired

coal

No. and Description of Boilers

one single ended

Working Pressure

215

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 in

as fitted 16.590 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

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 35/64"

1 33/64"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end TR lap

inter. TR lap

Long. seams

TR DBS

Diameter of rivet holes in

circ. seams

F 1 17/16"

C 1 9/8"

B 1 5/8"

long. seams

front

1 9/8"

Back

1 17/16"

Pitch of rivets

front

10 23/32"

back

10 27/32"

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

Working pressure of shell by Rules

216

Thickness of butt straps

outer

B 1 3/16"

F 1 5/32"

inner

B 1 9/16"

F 1 9/32"

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

crowd

49"

bottom

64"

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 15/32"

Pitch of stays

20 1/2" x 22 3/4"

How are stays secured

DN

Working pressure by Rules

216

End plates: Material

front

steel

Tensile strength

26-30 tons

Thickness

1"

back

19/16"

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 9/32"

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

23/32"

Back

23/32"

Top

23/32"

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

29/32"

Pitch of stays at wide water space

15 9/8"

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 & 416 sq in

Working pressure by Rules

225 & 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 & 97.5 sq in



Lloyd's Register Foundation
1177-0014

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" & 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"** Stay **3 1/2"** Thickness { **7/16"** **3/8"** **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 2/3"** Depth of flange if manhole flanged **3/4"** Steam Dome: Material **Iron**

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 **Smoke tube (Sugden)** Manufacturers of { Tubes **For particulars see Gl. Ser. 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 _____ 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 cock 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. Manufacturer
Arch. H. Grierson

Dates of Survey { During progress of work in shops - - } Are the approved plans of boiler and superheater forwarded herewith **yes** (If not state date of approval.)
 while building { During erection on board vessel - - }
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.

Rf
24/8/38

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

W. Davo.
 Engineer Surveyor to Lloyd's Register of Shipping

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

Assigned **SEE ACCOMPANYING MACHINERY REPORT.**

