

Rpt. 5a.

REPORT ON BOILERS.

No. 9715

Received at London Office

11 APR 1921

Date of writing Report

192

When handed in at Local Office

192

Port of

Belfast

No. in Survey held at
Reg. Book.Belfast
M. V. "PAVA"

Date, First Survey

15th Feby

Last Survey

9th April 1927

(Number of Visits 11)

Gross
Tons
Net

Master

Built at

Glasgow

By whom built

Harland & Wolff Ltd

Yard No. 750 G.

When built 1927.

Engines made at

By whom made

do.

Engine No. 750

When made 1927.

Boilers made at Belfast

By whom made

Harland & Wolff Ltd

Boiler No. 750 G.

When made 1927

Nominal Horse Power

Owners

Port belonging to

MULTITUBULAR BOILERS ~~MAIN, AUXILIARY, OR~~ DONKEY.

Manufacturers of Steel

David Colville & Sons Ltd.

(Letter for Record S)

Total Heating Surface of Boilers

498 sq ft

Is forced draught fitted

No.

Coal or Oil fired

No. and Description of Boilers

One single-ended cylindrical

Working Pressure 150 lbs.

Tested by hydraulic pressure to

300 lbs.

Date of test

9.4.27

No. of Certificate

889.

Can each boiler be worked separately

Area of Firegrate in each Boiler

17 1/2 sq ft

No. and Description of safety valves to each boiler

2 - Direct Spring

Area of each set of valves per boiler

per Rule 4.53 ins²
as fitted 4.80 ins²

Pressure to which they are adjusted

150 lbs.

Are they fitted with easing gear

yes

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

No main boilers.

Smallest distance between boilers or uptakes and bunkers or woodwork

Well clear

Is oil fuel carried in the double bottom under boilers

No.

Smallest distance between shell of boiler and tank top plating

Several feet

Is the bottom of the boiler insulated

No

Largest internal dia. of boilers

8'9"

Length

9'2"

Shell plates: Material

Steel

Tensile strength 29 7/8 & 33 tons

Thickness

3/32"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end double

long. seams

hebble & B.S.

Diameter of rivet holes in

circ. seams

15/16"

long. seams

15/16"

Pitch of rivets

2.676"

5 7/8"

Percentage of strength of circ. end seams

plate 64.9
rivets 61.5

Percentage of strength of circ. intermediate seam

plate
rivets

Percentage of strength of longitudinal joint

plate 82.5
rivets 141
combined 93.4

Working pressure of shell by Rules

161.5 lbs.

Thickness of butt straps

outer 17/32"
inner 21/32"

No. and Description of Furnaces in each Boiler

One Corrugated

Material

Steel

Tensile strength

26-30 tons

Smallest outside diameter

43"

Length of plain part

top
bottom

Thickness of plates

crown
bottom

3/4"

Description of longitudinal joint

welded

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

✓

Working pressure of furnace by Rules

167 lbs

End plates in steam space: Material

Steel

Tensile strength

26-30 tons

Thickness

1"

Pitch of stays

16 1/2"

How are stays secured

double nuts and washers

Working pressure by Rules

173 lbs

Tube plates: Material

front Steel
back Steel

Tensile strength

26-30 tons
26-30 tons

Thickness

1"
3/4"

Mean pitch of stay tubes in nests

8"

Pitch across wide water spaces

14"

Working pressure

front 285 lbs
back 167 lbs

Girders to combustion chamber tops: Material

Steel

Tensile strength

28-32 tons

Depth and thickness of girder

at centre

6'-1 1/2"

Length as per Rule

25'

Distance apart

9 1/2"

No. and pitch of stays

in each

Two 8 1/2"

Working pressure by Rules

168 lbs

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons

Thickness: Sides

11/16"

Back

11/16"

Top

11/16"

Bottom

11/16"

Pitch of stays to ditto: Sides

8" x 8"

Back

8" x 8 1/4"

Top

8 1/2" x 9 1/2"

Are stays fitted with nuts or riveted over

riveted over

Working pressure by Rules

166 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"

Pitch of stays at wide water space

8" x 8 1/4"

Are stays fitted with nuts or riveted over

riveted over

Working Pressure

400 lbs

Main stays: Material

Steel

Tensile strength

28-32 tons

Diameter

At body of stay,
or
Over threads

3"

No. of threads per inch

2 1/2"

Area supported by each stay

313.5 sq in

Working pressure by Rules

207 lbs

Screw stays: Material

Steel

Tensile strength

26-30 tons

Diameter

At turned off part,
or
Over threads

1 1/8"

No. of threads per inch

2 1/2"

Area supported by each stay

66 sq in

Working pressure by Rules *153 1/2* Are the stays drilled at the outer ends *Yes* Margin stays: Diameter { At turned off part, *1 3/4"* or Over threads *1 3/4"* ✓

No. of threads per inch *2en* ✓ Area supported by each stay *94.375 sq"* Working pressure by Rules *191 lb.*

Tubes: Material *Iron* ✓ External diameter { Plain *2 3/4"* Stay *2 3/4"* ✓ Thickness { *no. 7 Smg.* *1/4" x 3/8"* No. of threads per inch *2en* ✓

Pitch of tubes *16" x 12"* ✓ Working pressure by Rules *plain iron 153 1/2 lb. stay 264.6 lb.* Manhole compensation: Size of opening in shell plate *16" x 12"* ✓ Section of compensating ring *36" x 32" x 7/8" double* No. of rivets and diameter of rivet holes *28 - 15/16"* ✓

Outer row rivet pitch at ends *9"* ✓ Depth of flange if manhole flanged *✓* 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 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

Number of elements Material of tubes Manufacturers of { Tubes Steel castings

Material of headers Tensile strength Internal diameter and thickness of tubes 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 23 inclusive for boilers been complied with

The foregoing is a correct description,
FOR HARLAND AND WOLFF, LIMITED.
J.D. Gray Manufacturer.

Dates of Survey { During progress of work in shops - - *Feb 15. Mar 2. 7. 10. 11. 15. 18. 24. 25* *Apr. 2. 9 - 11*
 while building { During erection on board vessel - - -

Are the approved plans of boiler and superheater forwarded herewith *Yes* ✓
 (If not state date of approval.)
 Total No. of visits

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

This boiler has been constructed under special survey. The materials and workmanship are sound & good. It has been satisfactorily tested by hydraulic pressure and, in my opinion, is eligible for installing in a classed vessel. It is being shipped to Greenock

This boiler has been properly secured on board, examined under steam and safety valves adjusted to the working pressure.
J.D. Boyle, Glasgow, 16-6-22

Survey Fee ... £ *4 : 4 : -* When applied for, *9 April 1927*
 Travelling Expenses (if any) £ : : When received, *3/27 1927*

R. Lee James
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 5-JUL 1927**

Assigned *See G.L. Rpt. No. 46775* *W.D.*