

## REPORT ON BOILERS.

No. 100.315

13 APR 1942

Received at London Office

Date of writing Report

19

When handed in at Local Office

874/

1942

Port of

NEWCASTLE-ON-TYNE

No. in Survey held at  
Reg. Book.

Wallsend on Tyne

Date, First Survey

27 July 1941

Last Survey

1<sup>st</sup> April

1942

36428, on the SS. "EMPIRE. MARVELL"

(Number of Visits 66  
included in Survey Rpt.)Tons {  
Gross  
Net

Master

Built at

Sunderland

By whom built

Sir J. Laing &amp; Sons Ltd

Yard No. 740

When built 1942

Engines made at

Wallsend

By whom made

N.E. Marine Eng Co (1938) Ltd

Engine No. 3010

When made 1942

Boilers made at

"

By whom made

"

Boiler No. 3010

When made 1942

Nominal Horse Power

Owners

Ministry of War Transport

Port belonging to

Sunderland

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

Manufacturers of Steel

Colvilles Ltd

(Letter for Record

S

Total Heating Surface of Boilers

10020

Is forced draught fitted

yes

Coal or Oil fired

oil

No. and Description of Boilers

3 SB

Working Pressure

220

Tested by hydraulic pressure to

380

Date of test

12.1.42

No. of Certificate

937

Can each boiler be worked separately

yes

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

8-88

Area of each set of valves per boiler

per Rule

as fitted

9-8

Pressure to which they are adjusted

225

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

yes

Smallest distance between shell of boiler and tank top plating

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

16'-2 3/32"

Length

12'-6"

Shell plates: Material

S

Tensile strength

30-34

Thickness

1 39/64"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end

DR

long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams

1 9/16"

Pitch of rivets

4 1/8"

10 1/4"

Percentage of strength of circ. end seams

plate

62.1

rivets

47

Percentage of strength of circ. intermediate seam

plate

rivets

Percentage of strength of longitudinal joint

plate

84.75

rivets

88.7

combined

87.4

Working pressure of shell by Rules

Thickness of butt straps

outer

1 7/32"

inner

1 9/32"

No. and Description of Furnaces in each Boiler

3 cf.

Material

S

Tensile strength

26-30

Smallest outside diameter

47 23/32"

Length of plain part

top

bottom

Thickness of plates

crown

47/64"

bottom

Description of longitudinal joint

weld

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

Working pressure of furnace by Rules

End plates in steam space: Material

S

Tensile strength

26-30

Thickness

1 1/32"

Pitch of stays

22 1/2" x 18 1/2"

How are stays secured

Double nuts

Working pressure by Rules

15/16"

7/8"

Tube plates: Material

front

back

S

Tensile strength

26-30

Thickness

15/16"

7/8"

Mean pitch of stay tubes in nests

8-7"

Pitch across wide water spaces

14 1/2" x 7 1/4"

Working pressure

front

back

Girders to combustion chamber tops: Material

S

Tensile strength

29-33

Depth and thickness of girder

at centre

11 3/4" x 1" dbb

Length as per Rule

46 1/2"

Distance apart

8 1/2" wing 9" C.

No. and pitch of stays

in each

3 @ 11 1/8"

Working pressure by Rules

Combustion chamber plates: Material

S

Tensile strength

26-30

Thickness: Sides

13/16"

Back

23/32"

Top

13/16"

Bottom

29/32"

Pitch of stays to ditto: Sides

11 1/8" x 8 1/2"

Back

9 3/4" x 8"

Top

11 1/8" x 9"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

Front plate at bottom: Material

S

Tensile strength

26-30

Thickness

15/16"

Lower back plate: Material

S

Tensile strength

26-30

Thickness

15/16"

Pitch of stays at wide water space

15 3/8" x 8"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

Main stays: Material

S

Tensile strength

28-32

Diameter

At body of stay,

or

Over threads

3 1/4" x 3 1/2"

No. of threads per inch

6

Area supported by each stay

Working pressure by Rules

Screw stays: Material

S

Tensile strength

26-30

Diameter

At turned off part,

or

Over threads

1 3/4" x 2"

No. of threads per inch

9

Area supported by each stay

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003706-003711-0259 Foundation



Working pressure by Rules ☒ Are the stays drilled at the outer ends ☒ Margin stays: Diameter ☒ At turned off part, ☒ Over threads  $2\frac{1}{8} \times 2$ "  
No. of threads per inch 9 Area supported by each stay ☒ Working pressure by Rules ☒  
Tubes: Material S.D. Steel External diameter ☒ Plain  $2\frac{1}{2}$ " ☒ Stay  $2\frac{1}{2}$ " Thickness ☒ 8 L.S.G. ☒ No. of threads per inch 9  
Pitch of tubes  $4 \times 3\frac{1}{2}$ " Working pressure by Rules ☒ Manhole compensation: Size of opening in  
shell plate none Section of compensating ring No. of rivets and diameter of rivet holes  
Outer row rivet pitch at ends 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 N.E.M. Combustion Chamber Manufacturers of ☒ Tubes Stewarts & Lloyds  
☒ Steel forgings Stewarts & Lloyds  
☒ Steel castings Stewarts & Lloyds  
Number of elements 36 Material of tubes S.D. Steel Internal diameter and thickness of tubes 1.275 x 7 W.G.  
Material of headers S.D. Steel Tensile strength 26-28 Thickness 1" 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 3.14 Are the safety valves fitted with easing gear ☒ Working pressure as per  
Rules 220 lbs. Pressure to which the safety valves are adjusted 225 lbs. Hydraulic test pressure:  
tubes 1500 lbs Headers 660 and after assembly in place 440 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 ☒

The foregoing is a correct description,  
THE NORTH EASTERN MARINE ENGINEERING CO. (1938) LTD.  
John Neill Manufacturer.

Dates of Survey ☒ During progress of work in shops - - - ☒ See main Report  
☒ while building ☒ During erection on board vessel - - - ☒ Are the approved plans of boiler and superheater forwarded herewith ☒ See main report  
(If not state date of approval.)  
Total No. of visits

Is this Boiler a duplicate of a previous case ☒ If so, state Vessel's name and Report No. Empire Airman 100141 Ave.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The machinery of this vessel has been made & installed under Special Survey in accordance with the Approved Plans, the Specification & the Requirements of the Rules. The materials & workmanship are good & the machinery proved Satisfactory under working conditions. The boilers & Superheaters proved Satisfactory under Hydraulic test & on examination under steam.

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

B. Choffet  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 17 APR 1942

Assigned

See Mch. Rpt. 33366



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