

REPORT ON BOILERS.

No. 100141

Received at London Office 4 FEB 1942

Date of writing Report

19

When handed in at Local Office

2/2/1942

Port of **NEWCASTLE-ON-TYNE**

No. in Reg. Book. Survey held at

Wallsend.

Date, First Survey 27th July 1941 Last Survey 26 Jan 1942

(Number of Visits)

Tons { Gross Net

on the **SS. "EMPIRE AIRMAN"**

Master

Built at **Sunderland**

By whom built **Sir J. Laing & Sons Ltd** Yard No. 739 When built 1942

Engines made at

Wallsend

By whom made **N.E. Marine Eng Co (1938) Ltd**

Engine No. 3009 When made 1942

Boilers made at

-

Boiler No. 3009 When made 1942

Nominal Horse Power

Owners **Ministry of War Transport**

Port belonging to **Sunderland**

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Steel Co of Scotland 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 S.B.

Working Pressure **220**

Tested by hydraulic pressure to

380 lbs.

Date of test **27.11.41**

No. of Certificate **926**

Can each boiler be worked separately **yes**

Area of Firegrate in each Boiler

8.88

No. and Description of safety valves to each boiler **1 double improved high lift**

Area of each set of valves per boiler

9.8

Pressure to which they are adjusted **225 lbs.**

Are they fitted with easing gear **yes**

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

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 33/64"

Are the shell plates welded or flanged **no**

Description of riveting: circ. seams

DR

long. seams

W.R.D.B.S

Diameter of rivet holes in circ. seams **1 9/16"**

Pitch of rivets

4 1/8"

Percentage of strength of circ. end seams

plate **62.1**

rivets **47**

Percentage of strength of circ. intermediate seam

plate **84.75**

rivets **88.7**

Percentage of strength of longitudinal joint

plate **84.75**

rivets **88.7**

Working pressure of shell by Rules

Thickness of butt straps

outer **1 7/32"**

inner **1 1/32"**

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 **47"**

bottom **64"**

Thickness of plates

crown **47"**

bottom **64"**

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 1/4" x 18 1/2"**

How are stays secured

Double nuts

Working pressure by Rules

Tube plates: Material

front **S**

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 1/2"**

Working pressure

front **15/16"**

back **7/8"**

Girders to combustion chamber tops: Material

S

Tensile strength

29-33

Depth and thickness of girder

at centre **11 3/4" x 1" double**

Length as per Rule

46 1/2"

Distance apart **8 1/2" wing 9" centre**

No. and pitch of stays

in each

30 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 1/2" 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, **3 1/4" & 3 1/2"**

or Over threads **3 1/4"**

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, **1 3/4" & 2"**

or Over threads

No. of threads per inch

9

Area supported by each stay



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Working pressure by Rules Are the stays drilled at the outer ends Margin stays: Diameter ^{At turned off part,} or ^{Over threads} $2\frac{1}{2}'' + 2''$

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 $\frac{3}{16} + \frac{3}{16}$ No. of threads per inch 9

Pitch of tubes $4'' \times 3\frac{3}{8}''$ 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

How connected to shell Inner radius of crown Working pressure by Rules

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 Steel forgings Steel castings

Number of elements 36 Material of tubes *S.D. Steel* Internal diameter and thickness of tubes $1273 \times 7 \text{ W.G.}$

Material of headers *S.D. Steel* Tensile strength $26-28 \text{ tons}$ Thickness $1''$ Can the superheater be shut off and the boiler be worked separately *no* 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 3.14 Are the safety valves fitted with easing gear *yes* Working pressure as per Rules 220 lbs Pressure to which the safety valves are adjusted 225 lbs Hydraulic test pressure: tubes 1500 lbs ^{headers} forgings and castings 660 lbs and after assembly in place 440 lbs Are drain cocks or 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,
 THE NORTH EASTERN MARINE ENGINEERING CO. (1880) LTD.
 John Nall Manufacturer.

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

Total No. of visits

Is this Boiler a duplicate of a previous case *yes* If so, state Vessel's name and Report No. *Empire Silver Nave 99435*

GENERAL REMARKS (State quality of workmanship; opinions as to class, &c.) *These boilers have been made under Special Survey in accordance with the approved Plans, the Requirements of the Rules & the Specification. The materials & workmanship are good. The boilers proved sound & tight under hydraulic test & under steam.*

Survey Fee ... £ *See Machinery Report* When applied for, 19

Travelling Expenses (if any) £ ... When received, 19

R. C. Moffitt
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRL 20 FEB 1942

Assigned

See Std. J.C. 33310



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