

REPORT ON BOILERS.

13 APR 1942

Received at London Office

Date of writing Report

19

When handed in at Local Office

874/1542 Port of

NEWCASTLE-ON-TYNE

No. in Reg. Book

Wallsend on Tyne

Date, First Survey

27 July 1941

Last Survey

1st Apr 1942

1942

36428 on the SS. "EMPIRE. MARVELL"

(Number of Visits 66 included in Survey Rpt)

Gross Tons

Net

Master

Built at Sunderland

By whom built Sir J. Laing & 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 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 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 uptaks and bunkers or woodwork yes Is oil fuel carried in the double bottom under boilers yes

Smallest distance between shell of boiler and tank top plating yes Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 16'-2 31/32" 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 DR

long. seams T.R.D.B.S. Diameter of rivet holes in 1 9/16" Pitch of rivets 4 1/8"

Percentage of strength of circ. end seams 62.1 Percentage of strength of circ. intermediate seam 87.4

Percentage of strength of longitudinal joint 84.75 Working pressure of shell by Rules yes

Thickness of butt straps 1 5/32" 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 47/64" Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom yes Working pressure of furnace by Rules yes

End plates in steam space: Material S Tensile strength 26-30 Thickness 1 13/32" Pitch of stays 22 1/4" x 18 1/2"

How are stays secured Double nuts Working pressure by Rules 15/16"

Tube plates: Material S Tensile strength 26-30 Thickness 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 yes

Girders to combustion chamber tops: Material S Tensile strength 29-33 Depth and thickness of girder yes

at centre 11 3/4" x 1" dbble Length as per Rule 46 1/2" Distance apart 8 1/2" wing 9" C. No. and pitch of stays yes

in each 3 @ 11 3/8" Working pressure by Rules yes 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 yes 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 yes Main stays: Material S Tensile strength 28-32

Diameter 3 1/4" - 3 1/2" No. of threads per inch 6 Area supported by each stay yes

Working pressure by Rules yes Screw stays: Material S Tensile strength 26-30

Diameter 1 3/4" - 2" No. of threads per inch 9 Area supported by each stay yes

Working pressure by Rules Arc the stays drilled at the outer ends Margin stays: Diameter ^(At turned off part, or Over threads) $2\frac{1}{8} \times 2\frac{1}{2}$

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 $8 \text{ L.S.G. } \frac{7}{8} \times \frac{5}{16}$ 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 $1.275 \times 7 \text{ W.G.}$

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 **yes**

Area of each safety valve **3.14** Are the safety valves fitted with casing 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** ^(forgings and castings) **660** and after assembly in place **440** 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. (1938) LTD.
 John Neill Manufacturer.

Dates of Survey ^(During progress of work in shops - -) **See Mchly Report** Are the approved plans of boiler and superheater forwarded herewith **NO** ^(If not state date of approval.) **See mchly report**

^(During erection on board vessel - - -) **See Mchly Report** Total No. of visits

Is this Boiler a duplicate of a previous case **yes** 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 Mchly Rpt** When applied for, 19

Travelling Expenses (if any) £ **See Mchly Rpt** When received, 19

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

Committee's Minute **FRI, 17 APR 1942**

Assigned **See Mchly Rpt. No. 33366**

