

Rpt. 5a.

3 SEP 1944

D.O.

REPORT ON BOILERS.

No. 3007.

NE Mar. Machinery Contract 3/11. NEWCASTLE-ON-TYNE, No. 10314B
main app. by Bureau 2/10/44

Received at London Office 27 SEP 1944

Date of writing Report 21 September, 44. When handed in at Local Office 26 September, 44. Port of BARROW-IN-FURNESS.

No. in Survey held at BARROW Date, First Survey 4 January, 1944 Last Survey 20 September, 1944.

on the S/S. EMPIRE DOMINICA (Number of Visits 38) Tons {Gross Net

Master D. Built at Sunderland By whom built Short Bros. Yard No. 485 When built 1945-8mo

Engines made at Eldergow By whom made Duncan Stewart Lt. Engine No. A149 When made

Boilers made at BARROW By whom made Vickers-Armstrongs, Ltd. Boiler No. 851 When made 1944-9

Nominal Horse Power Owners Mun. of War Transport Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colvilles & Steel Co. of Scotland (Letter for Record S ✓)

Total Heating Surface of Boilers 7248 ft. ✓ Is forced draught fitted Yes ✓ Coal or Oil fired

No. and Description of Boilers 3 SB Working Pressure 220 lbs. "

Tested by hydraulic pressure to 380 lbs. ✓ Date of test 6.6.44 499 12.7.44 500 No. of Certificate 500 Can each boiler be worked separately Yes
9.8.44 501

Area of Firegrate in each Boiler 54.8 ft. ✓ No. and Description of safety valves to each boiler 2 Improved high lift spring loaded ✓

Area of each set of valves per boiler {per Rule 6.42 " as fitted 9.82 " ✓ Pressure to which they are adjusted 227th ✓ Are they fitted with easing gear Yes ✓

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

Smallest distance between boilers or uptakes and bunkers or woodwork ✓ Is oil fuel carried in the double bottom under boilers No

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

Largest internal dia. of boilers 15'-0.1/16" ✓ Length 11'-6" ✓ Shell plates: Material Steel Tensile strength 29/33 tons "

Thickness 1.15/32" Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R. lap ✓
inter. --

long. seams T.R.-D.B.S. Diameter of rivet holes in {circ. seams 1.31/64" ✓ 4.07" ✓
long. seams do ✓ Pitch of rivets {10.7/32" ✓

Percentage of strength of circ. end seams {plate 63.5% ✓ rivets 45.8% ✓ Percentage of strength of circ. intermediate seam {plate --
rivets --

Percentage of strength of longitudinal joint {plate 85.4% ✓ rivets 88.4% ✓ combined 88.5% ✓ Working pressure of shell by Rules 304 lbs/2"

Thickness of butt straps {outer 1 1/8" ✓ inner 1 1/4" ✓ No. and Description of Furnaces in each Boiler 3 c.f. Deighton Section ✓

Material Steel Tensile strength 26/30 tons " ✓ Smallest outside diameter 45 1/2" ✓

Length of plain part {top -- ✓ bottom -- ✓ Thickness of plates {crown 11/16" ✓ Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 222 lbs/2"

End plates in steam space: Material Steel ✓ Tensile strength 26/30 tons " ✓ Thickness 1.13/32" ✓ Pitch of stays 20" x 21" ✓

How are stays secured Nuts inside and out Working pressure by Rules 221 lbs/2"

Tube plates: Material {front Steel ✓ back Steel ✓ Tensile strength {26/30 tons " ✓ do Thickness {15/16" ✓ 25/32" ✓

Mean pitch of stay tubes in nests 9.7/16" Pitch across wide water spaces 14" x 8 1/4" Working pressure {front 229 lbs/2" back 230 "

Girders to combustion chamber tops: Material Steel Tensile strength 28/32 tons "" Depth and thickness of girder

at centre 10 1/2" x 1.5/8" (2 x 11/16") Length as per Rule 2'-9.7/16" Distance apart 9 1/4" No. and pitch of stays

in each 3 @ 8" pitch Working pressure by Rules 229 lbs/2" Combustion chamber plates: Material Steel

Tensile strength 26/30 tons " Thickness: Sides 11/16" Back 25/32" Top 11/16" Bottom 13/16"

Pitch of stays to ditto: Sides 8" x 9 1/4" ✓ Back 8" x 9 1/4" ✓ Top 8" x 9 1/4" ✓ Are stays fitted with nuts or riveted over Nuts ✓

Working pressure by Rules 221 lbs/2" Front plate at bottom: Material Steel ✓ Tensile strength 26/30 tons "

Thickness 15/16" Lower back plate: Material Steel ✓ Tensile strength 26/30 tons " Thickness 27/32" ✓

Pitch of stays at wide water space 14" x 8" ✓ Are stays fitted with nuts or riveted over Nuts ✓

Working Pressure 224 lbs/2" Main stays: Material Steel Tensile strength 28/32 tons " ✓

Diameter {At body of stay, 3 1/4" ✓ or Over threads -- No. of threads per inch 6 / Area supported by each stay 420 " ✓

Working pressure by Rules 221 lbs/2" Screw stays: Material Steel Tensile strength 26/30 tons "

Diameter {At turned off part, 1 3/4" ✓ or Over threads 1 3/4" ✓ No. of threads per inch 9 ✓ Area supported by each stay 74 " ✓



Working pressure by Rules **245 LBS/SQ** Are the stays drilled at the outer ends **No** Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part} \\ \text{or} \\ \text{Over threads} \end{array} \right. \frac{17}{8}''$

No. of threads per inch **9** Area supported by each stay **93''** Working pressure by Rules **8 W.G.**

Tubes: Material **Steel** External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \frac{3}{4}''$ Thickness $\left\{ \begin{array}{l} 5/16'' \text{ \& } 3/8'' \end{array} \right.$ No. of threads per inch **9**

Pitch of tubes **4 1/8 x 4 1/4** Working pressure by Rules **229 LBS/SQ** Manhole compensation: Size of opening in and shell plate **16'' x 12''** Section of compensating ring **---** No. of rivets and diameter of rivet holes **---**

Outer row rivet pitch at ends **---** Depth of flange if manhole flanged **top 4 1/4'' btm. 3 1/4''** 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 $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \text{---$

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 **Superheater 60's. "S" type** Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right. \left. \begin{array}{l} \text{Steel Forgings:- Chesterfield Tube Co.} \\ \text{Weldless Steel Tube Co.} \\ \text{Crofts, Bradford.} \end{array} \right.$

Number of elements **47 per Blr.** Material of tubes **Steel** Internal diameter and thickness of tubes **17m/m x 2 3/8 m/m**

Material of headers **Forged Steel** Tensile strength **---** Thickness **1''** Can the superheater be shut off and the boiler be worked separately **Yes and** 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 **1.77''** Are the safety valves fitted with casing gear **Yes** Working pressure as per Rules **---** Pressure to which the safety valves are adjusted **230 LBS/SQ and** Hydraulic test pressure **---**

tubes **---** forgings and castings **---** and after assembly in place **440 LBS and** 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,
In Vickers-Armstrongs Ltd.
Mitchell Manufacturer

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right. \left\{ \begin{array}{l} \text{During erection on board vessel} \end{array} \right. \left. \begin{array}{l} \text{1944.} \\ \text{Jan. 4. Feb. 2. 16. 21. 28. 28.} \\ \text{Mar. 9. 29. Apr. 18. May 2. 4. 5. 8. 9. 10. 22. 26.} \\ \text{June 6. 7. 12. 19. 22. 27. Jly. 12. 17. 19. 26. Aug. 3. 8. 9. 11. 22. 25.} \\ \text{Sept. 4. 8. 18. 19. 20.} \end{array} \right.$ Are the approved plans of boiler and superheater forwarded herewith **11.9.41** (If not state date of approval) **Superheater-see Man. Rpt**

Total No. of visits **38**

Is this Boiler a duplicate of a previous case **Yes** If so, state Vessel's name and Report No. **See Brw. Rpt. 2905, 2946 & 2973.**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
 These Boilers have been constructed under Special Survey in accordance with the approved plans the Rules and the Specification. The workmanship and materials are good and when tested by hydraulic pressure the boilers were found tight and satisfactory in every respect. The boiler are completed awaiting instructions for transfer to Messrs. Short Bros., Ltd. they having been provisionally allocated to their vessel A/MS1091.

These Main Boilers, Vickers-Armstrongs Ltd. Barrow, N° 851 have been efficiently fitted on board Ss EMPIRE DOMINICA, Short Bros. Yard No 485, by NE Mar. Wallsend under their machinery installing Contract No 3111. - and satisfactorily tested under steam under working conditions

A Watt Newcastle on Tyne Sept 1945.

Survey Fee **£ 40 : 4 : 00** When applied for, **30. 9. 19 44**
 Specification **10 : 1 : 0**
 Travelling Expenses (if any) **£ :** When received, **19**

[Signature]
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRID. 28 SEP 1945**

Assigned *See F.E. machy. rpt.*