

Rpt. 5a.

3 SEP 1944

D.O.

## REPORT ON BOILERS.

No. 3007.

NE Mar. Machinery Contract 3/11/11

NEWCASTLE-ON-TYNE, No. 103143

2/10/44

Date of writing Report 21 September, 44. When handed in at Local Office 26 September, 44.

Received at London Office

27 SEP 1944

Port of

BARROW-IN-FURNESS.

No. in Survey held at Reg. Book.

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

Built at

Sunderland

By whom built

Short Bros.

Yard No.

485

When built 1945-8mo

Engines made at

Pldagon

By whom made

Duncan Stewart &amp; Co.

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

Min. of War Transport

Port belonging to

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

Manufacturers of Steel

Colvilles &amp; 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  
12.7.44  
9.8.44

No. of Certificate

499  
500  
501

Can each boiler be worked separately

Yes

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

227 lb. ✓

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" ✓  
long. seams do ✓Pitch of rivets { 4.07" ✓  
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./sq. "

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" ✓  
bottom 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./sq. "

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./sq. "

Tube plates: Material { front Steel ✓  
back Steel ✓

Tensile strength

26/30 tons "

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./sq. "

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 3/8" (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./sq. "

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./sq. "

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./sq. "

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./sq. "

Screw stays: Material

Steel

Tensile strength

26/30 tons "

Diameter { At turned off part, 1 3/8" ✓  
or --  
Over threads --

No. of threads per inch

9

Area supported by each stay

74 " ✓

004489-004495-0146

Lloyd's Register  
Foundation



Working pressure by Rules 245 LBS/Sq. Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part. or Over threads. 1 7/8"
No. of threads per inch 9 Area supported by each stay 93" Working pressure by Rules 8 W.G.
Tubes: Material Steel External diameter { Plain 3" Stay 3" Thickness { 5/16" & 3/8" 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 { 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 Superheater 60's. "S" type Manufacturers of { Tubes Weldless Steel Tube Co. Steel forgings Crofts, Bradford. Steel castings
Number of elements 47 per Blr. Material of tubes Steel Internal diameter and thickness of tubes 17m/m x 2 1/2 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 easing 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/Sq. 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,
For Vickers-Armstrongs Ltd.
H. Mitchell Manufacturer

Dates { During progress of work in shops - 1944. Jan. 4. Feb. 2. 16. 21. 28. 28. Mar. 9. 29. Apr. 18. May 2. 4. 5. 8. 9. 10. 22. 26. June 6. 7. 12. 19. 22. 27. Jly. 12. 17. 19. 26. Aug. 3. 8. 9. 11. 22. 25. Sept. 4. 8. 18. 19. 20.
while building { During erection on board vessel - - -
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 Hs 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
Ad Watt Newcastle on Tyne Sept 1945.

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

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute 28 SEP 1945

Assigned See F.E. machy. rpt.