

REPORT ON BOILERS.

-2 JAN 1943

Received at London Office

Date of writing Report 18/12/42 When handed in at Local Office 18/12/42 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle on Tyne Date, First Survey 13 May Last Survey 16 Dec 1942

Reg. Book. "BRITISH GRATITUDE" (Number of Visits) Tons ^{Gross} 8463 _{Net} 4914

Master Built at Newcastle By whom built Swan, Hunter & Wigham Richardson Ltd Yard No. 1673 When built 1942

Engines made at Glasgow By whom made Harland & Wolff, Ls Engine No. 8458 When made 1942

Boilers made at Newcastle By whom made Swan, Hunter & Wigham Richardson Ltd Boiler No. 1732 When made 1942

Nominal Horse Power 235 Owners British Tanker Co Ld. Port belonging to London

MULTITUBULAR BOILERS ~~MAIN, AUXILIARY, OR DONKEY.~~

Manufacturers of Steel The Steel Coy. of Scotland, Furnace plates by Appleby-Frodingham Steel Co. (Letter for Record S.)

Total Heating Surface of Boilers 3530 sq ft Is forced draught fitted Yes Coal or Oil fired oil fired on white tank. gas.

No. and Description of Boilers Two Single Ended. Working Pressure 150 lbs

Tested by hydraulic pressure to 275 lbs Date of test 11/10/42 No. of Certificate Nº1007 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler Two 2 1/2" Cockburn's Imp High Lift.

Area of each set of valves per boiler ^{per Rule} 7.56 sq in _{as fitted} 7.95 " Pressure to which they are adjusted 150 lbs Are they fitted with casing 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 No

Smallest distance between shell of boiler and tank top plating Boilers on 2nd dk. flat in Eng. Room Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 12'-4 3/8" Length 11'-0" Shell plates: Material Steel Tensile strength 30 to 34 tons

Thickness 13/16 Are the shell plates welded or flanged No Description of riveting: circ. seams ^{end} DR overlap. _{inter.} none.

long. seams T.R. dble butt straps Diameter of rivet holes in ^{circ. seams} 15/16 _{long. seams} 7/8" Pitch of rivets 3.08" 6 3/16"

Percentage of strength of circ. end seams ^{plate} 69.59 _{rivets} 42.24 Percentage of strength of circ. intermediate seam ^{plate} _{rivets}

Percentage of strength of longitudinal joint ^{plate} 85.85 _{rivets} 85.96 _{combined} 88.91 Working pressure of shell by Rules 151 lbs.

Thickness of butt straps ^{outer} 5/8" _{inner} 3/4" No. and Description of Furnaces in each Boiler Two "Deighton" Corrugated

Material Stl. Tensile strength 26 to 30 tons Smallest outside diameter 3'-7 1/16"

Length of plain part ^{top} _{bottom} Thickness of plates ^{crow} 15/32" _{bottom} Description of longitudinal joint fire weld

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 156 lbs.

End plates in steam space: Material Stl Tensile strength 26 to 30 tons Thickness 15/16" Pitch of stays 17 3/4" x 14 5/8"

How are stays secured Nuts inside & outside Working pressure by Rules 152 lbs.

Tube plates: Material ^{front} Stl _{back} Tensile strength 26 to 30 tons Thickness 15/16" 3/4"

Mean pitch of stay tubes in nests 7 1/2" x 11 1/4" Pitch across wide water spaces 13 1/2" Working pressure ^{front} 183 lbs _{back} 228 lbs.

Girders to combustion chamber tops: Material Stl. Tensile strength 28 to 32 tons Depth and thickness of girder

at centre 7 3/4" x 5/8" x two Length as per Rule 2'-6 1/2" Distance apart 9." No. and pitch of stays

in each 2 @ 9 3/8" Working pressure by Rules 153 lbs. Combustion chamber plates: Material Stl.

Tensile strength 26 to 30 tons Thickness: Sides 5/8" Back 3/4" Top 5/8" Bottom 5/8"

Pitch of stays to ditto: Sides 9 x 9 3/8" Back 7 1/2 x 9" Top 9 x 9 3/8" Are stays fitted with nuts or riveted over CC side & back marginal stays fitted with NUTS. Remainder of CC back stays have riveted heads with CC & nuts outside.

Working pressure by Rules 160 lbs. Front plate at bottom: Material Stl Tensile strength 26 to 30 tons Thickness 15/16"

Thickness 15/16" Lower back plate: Material Stl Tensile strength 26 to 30 tons Thickness 15/16"

Pitch of stays at wide water space 9" x 13 1/2" Are stays fitted with nuts or riveted over with nuts

Working Pressure 155 lbs. min. Main stays: Material Stl Tensile strength 28 to 32 tons

Diameter ^{At body of stay,} 2 3/8 _{or} No. of threads per inch 6. Area supported by each stay 250-3.6 sq in

Working pressure by Rules 159 lbs. Screw stays: Material Stl Tensile strength 26 to 30 tons

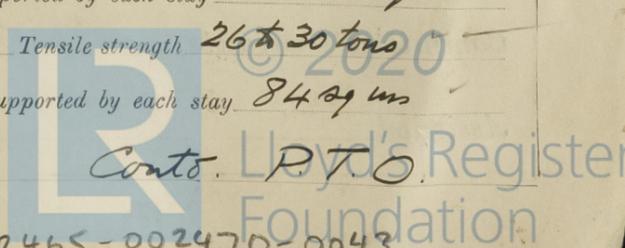
Diameter ^{At turned off part,} 1 1/2 _{or} No. of threads per inch 9. Area supported by each stay 84 sq in

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Newcastle on Tyne



Working pressure by Rules 151 lb Are the stays drilled at the outer ends No Margin stays: Diameter ^{At service off part} 1 5/8" + 1 3/4"
 No. of threads per inch 9 Area supported by each stay 92.8 sq in Working pressure by Rules 163 lb
 Tubes: Material Steel External diameter ^{Plain} 2 1/2" Thickness ^{10 wt} 1/4" + 5/16" No. of threads per inch 9
 Pitch of tubes 3 3/4" x 3 3/4" Working pressure by Rules 166 lb. min. Manhole compensation: Size of opening in
 shell plate 20 x 16" Section of compensating ring 1 7/8" x 1 3/16" No. of rivets and diameter of rivet holes 38 of 1/8" dia
 Outer row rivet pitch at ends 8" Depth of flange if manhole flanged 2 1/2" 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} _____
 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 None Manufacturers of Steel forgings
 Number of elements _____ Material of tubes _____ Internal diameter and thickness of tubes _____
 Material of headers _____ Tensile strength _____ Thickness _____ 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 _____ Are the safety valves fitted with easing gear _____ Working pressure as per
 Rules _____ Pressure to which the safety valves are adjusted _____ Hydraulic test pressure:
 tubes _____ forgings and castings _____ and after assembly in place _____ 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 Yes.
 The foregoing is a correct description,
SWAN, HUNTER, & WIGHAM RICHARDSON, LTD. Manufacturer.
J. J. Dwyer

Dates of Survey ^{During progress of} work in shops - - - See Machy Report Are the approved plans of boiler and superheater forwarded here 1/10/41
 while building ^{During erection on} board vessel - - - _____ Total No. of visits _____

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. British Character
SWAN R. Yard No 1698 NWC Rpt 100,073.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
These Donkey Boilers have been constructed under special survey in accordance with the approved plans and the Society's Rules, and the materials and workmanship are good. The Boilers have been efficiently fitted on board the vessel, tested under steam under working conditions and found satisfactory.
See also Machy Rpt H & B.

Survey Fee £ See Machy When applied for, 19
 Travelling Expenses (if any) £ : Rpt H & B. When received, 19

Re Watt
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 19 JAN 1943
 Assigned See NWC. 28. 100938