

REPORT ON BOILERS.

No. 92369

Received at London Office 28 MAR 1935

Date of writing Report 26th March, 1935 When handed in at Local Office 26th March, 1935 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle-on-Tyne Date, First Survey 19 Feb/1930 Last Survey 23rd March, 1935

068 on the STEEL S.S. ROXBURGH (Number of Visits) Gross 4241 Tons Net 2637

Master Built at Burntisland By whom built Burntisland L.B.C. Ltd. Yard No. 164 When built 1935

Engines made at Wallsend-on-Tyne By whom made North Eastern Marine Eng. Co. Ltd. Engine No. 2752 When made 1935

Boilers made at Wallsend-on-Tyne By whom made North Eastern Marine Eng. Co. Ltd. Boiler No. 2762 When made 1935

Indicated Horse Power 335 Owners B. J. Rutherford & Co. Ltd. Port belonging to Newcastle-on-Tyne.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Vereinigte Stahlwerke A.G. Stahl & Walzwerke Thyssen & Steel Co. of Scotland Ltd. (Letter for Record S ✓)

Total Heating Surface of Boilers 5445 sq. ft. Is forced draught fitted No Coal or Oil fired Coal

Name and Description of Boilers Three Single-Ended Working Pressure 210 lbs./sq. in.

Tested by hydraulic pressure to 365 lbs./sq. in. Date of test 21.1.35 No. of Certificate 628 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 39 sq. ft. No. and Description of safety valves to each boiler Two direct spring loaded

Area of each set of valves per boiler { per Rule 9.98 sq. in. 10.08 sq. in. as fitted 11.88 sq. in. Pressure to which they are adjusted 215 lbs./sq. in. Are they fitted with easing 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 18" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 2'-6" Is the bottom of the boiler insulated No

Largest internal dia. of boilers 13'-3 1/2" Length 11'-3" Shell plates: Material Steel Tensile strength 29/33 tons/sq. in.

Thickness 1 1/4" 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 5/16" long. seams 1 5/16" Pitch of rivets { 3 3/4" 8 7/8"

Percentage of strength of circ. end seams { plate 65 rivets 45.6 Percentage of strength of circ. intermediate seam { plate — rivets —

Percentage of strength of longitudinal joint { plate 85.2 rivets 90.7 combined 88.6 Working pressure of shell by Rules 214 lbs./sq. in.

Thickness of butt straps { outer 1 1/8" inner 1 1/8" No. and Description of Furnaces in each Boiler Two Deighton

Material Steel Tensile strength 26/30 tons/sq. in. Smallest outside diameter 3'-11 5/8"

Length of plain part { top — bottom — Thickness of plates { crown 1 1/16" bottom 1 1/16" Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom — Working pressure of furnace by Rules 212 lbs./sq. in.

End plates in steam space: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 1 3/16" Pitch of stays 18" x 17"

How are stays secured B. Nuts Working pressure by Rules 214 lbs./sq. in.

End plates: Material { front Steel back Steel Tensile strength { 26/30 tons/sq. in. Thickness { 1 3/32" 13/16"

Mean pitch of stay tubes in nests 9" Pitch across wide water spaces 14 1/2" Working pressure { front 25.2 lbs./sq. in. back 22.5 lbs./sq. in.

Orders to combustion chamber tops: Material Steel Tensile strength 29/33 tons/sq. in. Depth and thickness of girder

centre 2 @ 9" x 3/4" Length as per Rule 2'-7" Distance apart 10 1/2" No. and pitch of stays

each 2 @ 9 1/4" Working pressure by Rules 211 lbs./sq. in. Combustion chamber plates: Material Steel

Tensile strength 26/30 tons/sq. in. Thickness: Sides 25/32" Back 3/4" Top 25/32" Bottom 15/16"

Pitch of stays to ditto: Sides 9 1/4" x 10 7/8" Back 9 3/4" x 9 1/2" Top 10 1/2" x 9 1/4" Are stays fitted with nuts or riveted over Nuts.

Working pressure by Rules 212 lbs./sq. in. Front plate at bottom: Material Steel Tensile strength 26/30 tons/sq. in.

Thickness 1 3/32" Lower back plate: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 29/32"

Pitch of stays at wide water space 14 1/2" x 9 3/4" Are stays fitted with nuts or riveted over Nuts

Working Pressure 221 lbs./sq. in. Main stays: Material Steel Tensile strength 28/32 tons/sq. in.

Diameter { At body of stay, 2 3/4" No. of threads per inch 6 Area supported by each stay 306 sq. in.

Working pressure by Rules 214 lbs./sq. in. Screw stays: Material Steel Tensile strength 26/30 tons/sq. in.

Diameter { At turned off part, — No. of threads per inch 9 Area supported by each stay 100.59 sq. in.

Working pressure by Rules $212 \frac{1}{2} \text{ lbs./sq. in.}$ Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, - or Over threads 2" ✓
No. of threads per inch 9 ✓ Area supported by each stay 117 sq. in. Working pressure by Rules $212 \frac{1}{2} \text{ lbs./sq. in.}$
Tubes: Material $\frac{1}{2}$ Steel External diameter { Plain $3 \frac{1}{4}$ " ✓ Stay $3 \frac{1}{4}$ " ✓ Thickness { 7 L.S.G. ✓ $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ " No. of threads per inch 9 ✓
Pitch of tubes $4 \frac{1}{2}" \times 4 \frac{1}{2}"$ ✓ Working pressure by Rules 255 lbs./sq. in. Manhole compensation: Size of opening in
Back End shell plate $16" \times 12"$ ✓ Section of compensating ring none ✓ No. of rivets and diameter of rivet holes -
Outer row rivet pitch at ends - Depth of flange if manhole flanged 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 R. E. Marine Smoke Tube Manufacturers of { Tubes Jalbot Stead Headers Prodingham Steel Co.
Number of elements 96 Material of tubes $\frac{1}{2}$ Steel Internal diameter and thickness of tubes $17 \text{ mm.} \times 2 \frac{1}{2} \text{ mm.}$
Material of headers Forged Steel Tensile strength $26/30 \text{ tons/sq. in.}$ Thickness $\frac{3}{4}"$ 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 sq. in. Are the safety valves fitted with easing gear yes. Working pressure as per
Rules 210 lbs./sq. in. Pressure to which the safety valves are adjusted 215 lbs./sq. in. Hydraulic test pressure:
tubes $1500 \text{ lbs./sq. in.}$ & castings headers 630 lbs./sq. in. and after assembly in place 525 lbs./sq. in. 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,
Manufacturer

Dates of Survey { During progress of work in shops - - } See Machy report Are the approved plans of boiler and superheater forwarded herewith yes. ✓
while building { During erection on board vessel - - } (If not state date of approval.)
Total No. of visits

Is this Boiler a duplicate of a previous case no If so, state Vessel's name and Report No. -

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
These boilers have been constructed under special survey in accordance with the Rules and approved plan; the materials and workmanship are good. The boilers have been satisfactorily installed in the vessel, examined under working conditions and found satisfactory.

Survey Fee ... See Machy Report When applied for, 19
Travelling Expenses (if any) £ : When received, 19
A. B. Forster.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 5 APR 1935
Assigned J. E. Machy Rph