

REPORT ON BOILERS.

No. 90900

Received at London Office

9 JAN 1934

Date of writing Report 7th Dec. 1934 When handed in at Local Office 8th Dec. 1934 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle-on-Tyne Date, First Survey 19 June 1933 Last Survey 5. 1. 1934

on the S.S. "ARCWEAR" (Number of Visits) Tons { Gross 4157 Net 2503

Builder Sunderland By whom built Short Bros. Yard No. 443 When built 1934.
Engines made at Newcastle-on-Tyne By whom made North Eastern Marine Eng. Co. Ltd. Engine No. 2797 When made 1934.
Boilers made at Newcastle-on-Tyne By whom made North Eastern Marine Eng. Co. Ltd. Boiler No. 2797 When made 1934.
Nominal Horse Power 357 Owners Arcwear Shipping Co Port belonging to London
(Peterwood Arcwear Ship Ltd.)

ULTITUBULAR BOILERS—MAIN, ~~AUXILIARY~~, OR ~~DONKEY~~.

Manufacturers of Steel Steel Company of Scotland (Letter for Record S.)
Total Heating Surface of Boilers 3904 sq ft Is forced draught fitted yes Coal or Oil fired coal
and Description of Boilers Two Single Ended Working Pressure 220 lbs/sq in
Tested by hydraulic pressure to 380 lbs/sq in Date of test 18. 8. 33 No. of Certificate 699 Can each boiler be worked separately yes
Area of Firegrate in each Boiler 39.5 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 10.4 sq ft as fitted 11.88 sq ft Pressure to which they are adjusted 226 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 yes
Smallest distance between boilers or uptakes and bunkers 21" Is oil fuel carried in the double bottom under boilers no
Smallest distance between shell of boiler and tank top plating 24" Is the bottom of the boiler insulated yes
Greatest internal dia. of boilers 13'-3 7/16" Length 11'-6" Shell plates: Material Steel Tensile strength 29/33 tons/sq in
Thickness 1 9/32" Are the shell plates welded or flanged no Description of riveting: circ. seams { end D.R. inter. 3 3/4"
Pitch of rivets { 9 3/16"
Percentage of strength of circ. end seams { plate 65 rivets 44.7 Percentage of strength of circ. intermediate seam { plate 87.5 rivets 85.4
Working pressure of shell by Rules 221
Percentage of strength of longitudinal joint { plate 88.5 rivets 88.5
Thickness of butt straps { outer 1 1/8" inner 1 1/8" No. and Description of Furnaces in each Boiler 3 Corrugated (Brighton)
Material Steel Tensile strength 26/30 tons/sq in Smallest outside diameter 2'-11 3/8"
Thickness of plates { crown 9/16" bottom 9/16" Description of longitudinal joint weld
Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 230 lbs/sq in
Plates in steam space: Material Steel Tensile strength 26/30 tons/sq in Thickness 1 5/16" Pitch of stays 21" x 16 1/2"
Are stays secured D. nuts Working pressure by Rules 226 lbs/sq in
Plates: Material { front Steel back Steel Tensile strength { 26/30 tons/sq in Thickness { 3 1/2" 3 1/4"
Pitch of stay tubes in nests 8 1/2" Pitch across wide water spaces 14 1/4" x 8 1/2" Working pressure { front 229 lbs/sq in back 278 lbs/sq in
Stays to combustion chamber tops: Material Steel Tensile strength 29/33 tons/sq in Depth and thickness of girder
Size 8 1/2" x 2 @ 3/4" Length as per Rule 2'-6" Distance apart 9 1/4" No. and pitch of stays
Size 2 @ 8 7/8" Working pressure by Rules 227 lbs/sq in Combustion chamber plates: Material Steel
Tensile strength 26/30 tons/sq in Thickness: Sides 23/32" Back 25/32" Top 23/32" Bottom 23/32"
Pitch of stays to ditto: Sides 8 7/8" x 9 1/4" Back 10 5/8" x 9" Top 8 7/8" x 9 1/4" Are stays fitted with nuts or riveted over Nuts
Working pressure by Rules 221 lbs/sq in Front plate at bottom: Material Steel Tensile strength 26/30 tons/sq in
Thickness 3 1/2" Lower back plate: Material Steel Tensile strength 26/30 tons/sq in Thickness 1 5/16"
Pitch of stays at wide water space 14 1/4" x 10 5/8" Are stays fitted with nuts or riveted over Nuts
Working Pressure 228 lbs/sq in Main stays: Material Steel Tensile strength 28/32 tons/sq in
Pitch { At body of stay, 3" No. of threads per inch 6 Area supported by each stay 346.6 sq in
Over threads 3 1/4" Screw stays: Material Steel Tensile strength 26/30 tons/sq in
Working pressure by Rules 226 lbs/sq in At turned off part, 1 7/8" x 1 3/4" No. of threads per inch 9 Area supported by each stay 95.75" x 81.75"
Over threads 1 7/8" x 1 3/4"

Working pressure by Rules 222 1/2 ^{4 1/2} Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 2 1/8 or Over threads 2 1/8 }
No. of threads per inch 9 Area supported by each stay 123.5 Working pressure by Rules 230 ^{4 1/2}
Tubes: Material 40 Steel External diameter { Plain 3 Stay 3 } Thickness { 8 L.S.G. 3/8 ^{1/4} } No. of threads per inch 9
Pitch of tubes 4 1/4" x 4 1/4" Working pressure by Rules 250 ^{4 1/2} Manhole compensation: Size of opening in End 16" x 12" Section of compensating ring none - plate flange of rivets and diameter of rivet holes none
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 rivets ✓
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 Type Manufacturers of Talbot & Stead
Number of elements 96 Material of tubes 40 Steel Internal diameter and thickness of tubes 1 5/8" x 2 1/2"
Material of headers Forged Steel Tensile strength 26/30 tons Thickness 1 1/8" 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 ^{1/4} Are the safety valves fitted with easing gear yes Working pressure as per Rules 220 ^{4 1/2} Hydraulic test pressure 225 ^{4 1/2}
Pressure to which the safety valves are adjusted 225 ^{4 1/2} Are drain cocks or valves fitted to free the superheater from water where necessary yes
tubes 1500 ^{4 1/2} castings 660 ^{4 1/2} and after assembly in place 550 ^{4 1/2}

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with ✓

The foregoing is a correct description, Philadelphia

Dates of Survey { During progress of work in shops -- } See Weekly Report Are the approved plans of boiler and superheater forwarded herewith yes (If not state date of approval.)
while building { During erection on board vessel --- } 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.)

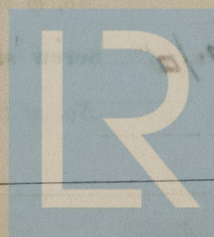
These boilers have been constructed under special survey in accordance with the Rules and approved plan; the materials and workmanship are good. The boilers have been satisfactorily installed in the vessel, examined under steam and found satisfactory.

Survey Fee See Rpt. on Machinery When applied for, 19
Travelling Expenses (if any) ✓ When received, 19

Jn Wm Butler & Self,
A. B. Forster
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute TUE 9 JAN 1934

Assigned See NWC 90900



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Lloyd's Register
Foundation