

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

Built at Lunderland 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 Arewear Shipping Co. Port belonging to London
(Essexwood Are Form Ship Ltd.)

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

Manufacturers of Steel Steel Company of Scotland (Letter for Record S)
Nominal Heating Surface of Boilers 1305 sq ft Is forced draught fitted no Coal or Oil fired coal
Description of Boilers One Single Ended Working Pressure 220 lbs./sq. in.
Fitted by hydraulic pressure to 380 lbs./sq. in. Date of test 18-8-33 No. of Certificate 600 Can each boiler be worked separately yes
Area of Firegrate in each Boiler 34 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 6.6 sq ft as fitted 7.96 sq ft Pressure to which they are adjusted 225 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 no

Least distance between boilers or uptakes and bunkers or woodwork 8'-0" Is oil fuel carried in the double bottom under boilers no
Least distance between shell of boiler and tank top plating 2'-3" Is the bottom of the boiler insulated no
Greatest internal dia. of boilers 11'-9 1/16" Length 10'-6" Shell plates: Material Steel Tensile strength 29/33 tons/sq. in.
Thickness 1 5/32" Are the shell plates welded or flanged no Description of riveting: circ. seams { end D.R. inter.
Long. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams } 1 1/4" Pitch of rivets { 3 3/4" inter. 8 9/16"
Percentage of strength of circ. end seams { plate 66.6 rivets 44.8 Percentage of strength of circ. intermediate seam { plate rivets
Percentage of strength of longitudinal joint { plate 85.4 rivets 92.1 combined 89.2 Working pressure of shell by Rules 222 lbs./sq. in.
Thickness of butt straps { outer 7/8" inner 1"

No. and Description of Furnaces in each Boiler 2 Corrugated (Deighton)
Material Steel Tensile strength 26/30 tons/sq. in. Smallest outside diameter 3'-5 9/16"
Thickness of plates { crown } 3 1/2" Description of longitudinal joint weld
Bottom { } Working pressure of furnace by Rules 231 lbs./sq. in.
Dimensions of stiffening rings on furnace or c.c. bottom none Thickness 1 5/16" Pitch of stays 15" x 22"
Plates in steam space: Material Steel Tensile strength 26/30 tons/sq. in. Working pressure by Rules 237 lbs./sq. in.
Are stays secured 9 nuts Thickness { 3 1/2" } 23 3/32"

Pitch of stay tubes in nests 8 7/8" Pitch across wide water spaces 14 1/2" = 8 3/4" Working pressure { front 226 lbs./sq. in. back 232 lbs./sq. in.
Boilers to combustion chamber tops: Material Steel Tensile strength 29/33 tons/sq. in. Depth and thickness of girder
Size 8 1/2" x 20 3/4" Length as per Rule 2'-4" Distance apart 10 1/2" No. and pitch of stays
Working pressure by Rules 229 lbs./sq. in. Combustion chamber plates: Material Steel
Tensile strength 26/30 tons/sq. in. Thickness: Sides 3/4" Back 23/32" Top 3/4" Bottom 3/4"
Pitch of stays to ditto: Sides 10 1/2" x 8 1/4" Back 9 1/4" x 8 1/8" Top 10 1/2" x 8 1/4" Are stays fitted with nuts or riveted over nuts
Working pressure by Rules 222 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 3 1/2"
Pitch of stays at wide water space 14 1/2" x 8 1/8" Are stays fitted with nuts or riveted over nuts

Shipping Pressure 280 lbs./sq. in. Main stays: Material Steel Tensile strength 28/32 tons/sq. in.
Pitch of stays { At body of stay, 3" No. of threads per inch 6 Area supported by each stay 330 sq. in.
Over threads 3 1/4" Working pressure by Rules 237 lbs./sq. in. Screw stays: Material Steel Tensile strength 26/30 tons/sq. in.
Pitch of stays { At turned off part, 1 3/4" x 1 7/8" No. of threads per inch 9 Area supported by each stay 75.25 sq. in. x 96.5 sq. in.
Over threads

Working pressure by Rules 241 & 221 ^{1/2" dia} Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 1 7/8" or Over threads 1 7/8"

No. of threads per inch 9 Area supported by each stay 96.5" Working pressure by Rules 221 lbs./sq"

Tubes: Material S/P Steel External diameter { Plain } 3 1/4" Thickness { 8 L.S.G. } No. of threads per inch 9

Pitch of tubes 4 1/2" x 4 3/8" Working pressure by Rules 230 lbs./sq" Manhole compensation: Size of opening in shell plate 16" x 12" Section of compensating ring zone-plate flange No. of rivets and diameter of rivet holes ✓

Outer row rivet pitch at ends ✓ Depth of flange if manhole flanged 4" Steam Dome: Material zone

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 ✓

How connected to shell ✓ Inner radius of crown ✓ Working pressure by Rules ✓

of rivets in outer row in dome connection to shell ✓ Size of doubling plate under dome ✓ Diameter of rivet holes and pitch ✓

Type of Superheater zone Manufacturers of { Tubes ✓ Steel castings ✓

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 ✓

Area of each safety valve ✓ Is a safety valve fitted to every part of the superheater which can be shut off from the boiler ✓

Rules ✓ Pressure to which the safety valves are adjusted ✓ Working pressure as per tubes ✓, castings ✓ and after assembly in place ✓ Hydraulic test pressure: 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 ✓

The foregoing is a correct description
A. Campbell
 Manufacturer

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

{ 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.)

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

Survey Fee See Report on Machinery When applied for, 10
 Travelling Expenses (if any) £ : : When received, 10

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

Committee's Minute TUE 9 JAN 1934

Assigned see nwe 90900

