

Rpt. 5a.

## REPORT ON BOILERS.

Sld. No. 28772  
Nwc. No. 77350  
MAR 24 MAR 1924

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Date of writing Report 22nd Dec 1923 When handed in at Local Office 22nd Dec 1923 Port of NEWCASTLE-ON-TYNE

No. in Reg. Book. Survey held at Newcastle on Tyne Date, First Survey 18 May Last Survey 21st Dec 1923  
on the M.V. "PACIFIC SHIPPER" (Number of Visits 7) Gross 6304 Tons Net 5850  
Master Built at Sunderland By whom built H. Doreford & Son Ltd. No. 577 When built 1924  
Engines made at Sunderland By whom made H. Doreford & Son Ltd. Engine No. 561 When made 1924  
Boilers made at Newcastle on Tyne By whom made Hawthorn Leslie & Co. Ltd. Boiler No. 8721 When made 1923  
Nominal Horse Power Owners Furness, Withy & Co. Ltd. Port belonging to London

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel J. Spencer & Son Ltd. (Letter for Record S)  
Total Heating Surface of Boilers 1830 sq. ft. 1800 for fuel Is forced draught fitted NO Coal or Oil fired OIL.  
No. and Description of Boilers One, Single Ended Multitubular Working Pressure 125 lb. per sq. in.  
Tested by hydraulic pressure to 238 lb. Date of test 15/6/23 No. of Certificate 9770 Can each boiler be worked separately ✓  
Area of Firegrate in each Boiler OIL FIRED No. and Description of safety valves to each boiler Two, direct spring  
Area of each set of valves per boiler { per Rule 19.6 sq. in. as fitted 20.64 sq. in. Pressure to which they are adjusted 130 lb. 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 4'-3" Is oil fuel carried in the double bottom under boilers YES  
Smallest distance between shell of boiler and tank top plating 4'-3" Is the bottom of the boiler insulated NO  
Largest internal dia. of boilers 13'-6" Length 11'-0" Shell plates: Material Steel Tensile strength 28 to 32 tons  
Thickness 27/32" Are the shell plates welded or flanged No Description of riveting: circ. seams { end S.R. inter. ✓  
long. seams Double strap, 3 rivets Diameter of rivet holes in { circ. seams 1 1/16" long. seams 1 1/16" Pitch of rivets { 3" 5 1/2"  
Percentage of strength of circ. end seams { plate 66.6 rivets 50.6 Percentage of strength of circ. intermediate seam { plate 80.7 rivets 88.7  
Percentage of strength of longitudinal joint { plate 80.7 rivets 88.7 combined 90.9 Working pressure of shell by Rules 126 lb.  
Thickness of butt straps { outer 23/32" inner 27/32" No. and Description of Furnaces in each Boiler Three, Morrisons  
Material Steel Tensile strength 26/30 tons Smallest outside diameter 38 1/4"  
Length of plain part { top bottom Thickness of plates { crown 3/8" bottom 3/8" Description of longitudinal joint Welded  
Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 138 lb.  
End plates in steam space: Material Steel Tensile strength 26/30 tons Thickness 1" Pitch of stays 22" x 16"  
How are stays secured Double Nuts & washers Working pressure by Rules 129 lb.  
Tube plates: Material { front back } Steel Tensile strength { 26 to 30 tons Thickness { 7/8" 3/4"  
Mean pitch of stay tubes in nests 11 1/8" Pitch across wide water spaces 14 1/4" Working pressure { front 136 lb back ✓  
Girders to combustion chamber tops: Material Steel Tensile strength 28 to 32 tons Depth and thickness of girder at centre 9" x 1 1/2" Length as per Rule 34" Distance apart 11 7/8" No. and pitch of stays in each Two, 10 1/2" Working pressure by Rules 159 lb. Combustion chamber plates: Material Steel  
Tensile strength 26/30 tons Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 7/8"  
Pitch of stays to ditto: Sides 11 7/8" x 10 1/2" Back 11" x 10 1/2" Top 11 7/8" x 10 1/2" Are stays fitted with nuts or riveted over Nuts  
Working pressure by Rules 131 lb. Front plate at bottom: Material Steel Tensile strength 26/30 tons  
Thickness 7/8" Lower back plate: Material Steel Tensile strength 26/30 tons Thickness 3/4"  
Pitch of stays at wide water space 14 1/4" Are stays fitted with nuts or riveted over Nuts.  
Working Pressure 162 lb. Main stays: Material Steel Tensile strength 28/32 tons  
Diameter { At body of stay, or Over threads } 2 1/2" No. of threads per inch 6 Area supported by each stay 352 sq. in.  
Working pressure by Rules 164 lb. Screw stays: Material Steel Tensile strength 26/30 tons  
Diameter { At turned off part, or Over threads } 1 3/4" No. of threads per inch 9 Area supported by each stay 124.6 sq. in.



Working pressure by Rules 145 lb Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, ✓  
 No. of threads per inch 9 Area supported by each stay 134 sq" Working pressure by Rules 135 lb  
 Tubes: Material Iron External diameter { Plain 3 3/4" Thickness { 5/16" No. of threads per inch 9  
 Stay 3 3/4" Pitch of tubes 4 1/2" x 4 3/8" Working pressure by Rules 130 Stay 150 Manhole compensation: Size of opening in  
 shell plate 16" x 12" Section of compensating ring 7" x 7/8" No. of rivets and diameter of rivet holes forty, 1"  
 Outer row rivet pitch at ends 3 3/4" Depth of flange if manhole flanged ✓ 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 ✓ 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 ✓ 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 ✓ 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 23 inclusive for boilers been complied with ✓

The foregoing is a correct description,

R. D. Armstrong Manufacturer.

Dates of Survey { During progress of work in shops - - - 1923 May 18, 26, 29, June 5, 8, 11, 13, 15, 16, 21, 22, July 24, 26 Are the approved plans of boiler and superheater forwarded herewith yes (If not state date of approval.)  
 while building { During erection on board vessel - - - Aug. 3, 22, Oct. 23, Dec. 21. Total No. of visits 17.

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) This boiler has been built under special survey, the materials and workmanship are of good quality and on completion was tested by hydraulic pressure to 238 pounds per square inch and was found tight & sound at that pressure. The mountings were tested to 250 lb per sq. in. This boiler is to be forwarded to Sunderland for fitting on board.

The 4 steel test docket flimsies and the report on safety valves now forwarded with plan of boiler are for 2 boilers, Messrs. Doxford numbers being 577 and 578.

This boiler has now been fitted and fired in the vessel in a satisfactory manner, the oil burning installation has been examined and tested under working conditions & found satisfactory.

Survey Fee ... .. £ 12 : 0 : 0 When applied for Sec. Ltr 1923  
 Travelling Expenses (if any) £ : : When received 10 . 1 . 1924

George Murdoch  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRIMAR 28 1924  
 Assigned See Std 28772