

REPORT ON BOILERS.

Received at London Office 21 NOV 1927

Date of writing Report 1927 When handed in at Local Office 15 NOV. 1927 Port of Sunderland.

No. in Reg. Book. Survey held at Sunderland Date, First Survey Last Survey Nov. 8 1927

on the S.S. "BENTON" (Number of Visits) Gross 4385 Tons Net 2598

Master Built at Sunderland By whom built Wm. Pickering & Co. Yard No. 219 When built 1927

Engines made at Sunderland By whom made George Black Ltd. Engine No. 1148 When made 1927

Boilers made at do By whom made do Boiler No. 1148 When made 1927

Nominal Horse Power 387 Owners International South American Steamship Co. Ltd. Port belonging to Newcastle

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Co. of Scotland Ltd. (Letter for Record S)

Total Heating Surface of Boilers 6363 sq ft Is forced draught fitted no Coal or Oil fired coal

No. and Description of Boilers Three cyl. 3cf. Working Pressure 180

Tested by hydraulic pressure to 320 Date of test 19/7/27 No. of Certificate 3946 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 62.9 sq ft No. and Description of safety valves to each boiler Two spring loaded. Area of each set of valves per boiler 20 sq in Pressure to which they are adjusted 185 lbs. 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 or woodwork 8'-0" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 3'-0" Is the bottom of the boiler insulated no Largest internal dia. of boilers 14'-9 1/2" Length 11'-0" Shell plates: Material Steel Tensile strength 28-32 TONS

Thickness 1 1/2" Are the shell plates welded or flanged no Description of riveting: circ. seams end J.R.L. inter. 3 1/8" F 8 3/4" BACK. long. seams TR. J.B.S. Diameter of rivet holes in circ. seams 1 3/16" FRONT 1/4" BACK Pitch of rivets 8 1/8"

Percentage of strength of circ. end seams plate 65.5% rivets 43.6% Percentage of strength of circ. intermediate seam plate 85.81% rivets 87.5% combined 89.2%

Percentage of strength of longitudinal joint plate 85.81% rivets 87.5% combined 89.2% Working pressure of shell by Rules 182 lbs.

Thickness of butt straps outer 1 1/2" inner 1 1/4" No. and Description of Furnaces in each Boiler Three Deighton Tensile strength 26 to 30 TONS Smallest outside diameter 3'-8 3/8"

Material Steel Thickness of plates crown 3 9/16" bottom 3 9/16" Description of longitudinal joint welded Length of plain part top bottom Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 183

End plates in steam space: Material Steel Tensile strength 26 to 30 TONS Thickness 1 5/16" Pitch of stays 20" x 22 1/4" How are stays secured D.N.W. Working pressure by Rules 180

Tube plates: Material front Steel back Steel Tensile strength 26-30 Thickness 1 3/8" 3/4" Working pressure front 226 lbs. back 192

Mean pitch of stay tubes in nests 10 1/4" Pitch across wide water spaces 14 1/4" x 8 3/4" Working pressure front 226 lbs. back 192

Girders to combustion chamber tops: Material Steel Tensile strength 28 to 32 TONS Depth and thickness of girder at centre 7 1/8" x 1 3/4" Length as per Rule 2'-8" Distance apart 10" No. and pitch of stays in each 2 @ 10" Working pressure by Rules 182 lbs.

Combustion chamber plates: Material Steel Tensile strength 26 to 30 TONS Thickness: Sides 23" Back 1 1/8" Top 23" Bottom 23"

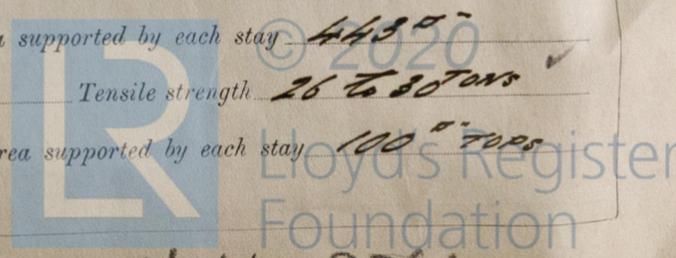
Pitch of stays to ditto: Sides 10" x 10" Back 9" x 10" Top 10" x 10" Are stays fitted with nuts or riveted over NUTS. Working pressure by Rules 7 x sides 181

Front plate at bottom: Material Steel Tensile strength 26 to 30 TONS Thickness 1 3/8" Lower back plate: Material Steel Tensile strength 26 to 30 TONS Thickness 1 5/16"

Pitch of stays at wide water space 15 1/4" x 8 3/4" Are stays fitted with nuts or riveted over NUTS. Working Pressure 218 Main stays: Material Steel Tensile strength 28-32 TONS

Diameter At body of stay 3 5/8" No. of threads per inch 6 Area supported by each stay 4430 Over threads 3 1/2"

Working pressure by Rules 191 lbs. Screw stays: Material Steel Tensile strength 26 to 30 TONS Diameter At turned off part 3 1/8" No. of threads per inch 9 Area supported by each stay 100" TONS



Working pressure by Rules 180^{top} Are the stays drilled at the outer ends No ^{CORNER} Margin stays: Diameter 2 1/4" ^{At turned off part or Over threads} 2 1/8"

No. of threads per inch 9 Area supported by each stay 159" Working pressure by Rules 202^{top}

Tubes: Material S.D. STEEL External diameter ^{Plain} 3 1/4" ^{Stay} 3 1/4" Thickness 8 WG ^{3/8", 5/16", 1/4"} No. of threads per inch 9

Pitch of tubes 4 3/8" x 4 3/8" Working pressure by Rules 230^{top} Manhole compensation: Size of opening in shell plate 12" x 16" Section of compensating ring - No. of rivets and diameter of rivet holes -

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

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 -

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 - 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 23 inclusive for boilers been complied with Yes

The foregoing is a correct description,
FOR GEORGE CLARK LIMITED W. S. MILLER Manufacturer.

Dates of Survey ^{During progress of work in shops - -} Please see Mach. Rpt. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) -

while building ^{During erection on board vessel - - -} - Total No. of visits -

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been built under special survey & the workmanship and materials are good. On completion they were satisfactorily fitted in the vessel & the safety valves adjusted under steam. For recommendation regarding notation see machinery report.

Survey Fee £ : : When applied for, 192

Travelling Expenses (if any) £ : : When received, 192

J. H. ...
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES 22 NOV 1927

Assigned See Rpt attached

