

# REPORT ON BOILERS.

No. 9284.

Received at London Office 12 FEB 1942

Date of writing Report 29<sup>th</sup> Jan 1942. When handed in at Local Office 5<sup>th</sup> Feb 1942 Port of Dundee

No. in Survey held at Dundee Date, First Survey 16<sup>th</sup> April Last Survey 1<sup>st</sup> Sept 1941  
in shop.

538 on the R.F.A. "GREEN RANGER" (Number of Visits 17.) Tons { Gross 3313. Net 1506.

Master Built at Dundee By whom built Baledon S. B. & E. Co Ltd No. 391 When built 1942

Engines made at Sunderland By whom made Wm Doxford & Sons Ltd Engine No. 219 When made 1942

Boilers made at Dundee By whom made Baledon S. B. & E. Co Ltd Boiler No. 591 When made 1942

Nominal Horse Power of Boilers 112 Owners The Admiralty Port belonging to London

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colvilles Ltd (Letter for Record (3))

Total Heating Surface of Boilers 1675 sq ft. Is forced draught fitted Yes Coal or Oil fired oil

No. and Description of Boilers One Single-ended Multitubular Working Pressure 150 lbs

Tested by hydraulic pressure to 275 lbs. Date of test 1-9-41 No. of Certificate 1043 Can each boiler be worked separately yes

Area of Firegrate in each Boiler Oil fired No. and Description of safety valves to each boiler Double High Lift

Area of each set of valves per boiler per Rule 12.6" dia? as fitted 4.95" High Lift Pressure to which they are adjusted 155 lbs 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 Boilers in 'tw deck Is oil fuel carried in the double bottom under boilers ✓

Smallest distance between shell of boiler and tank top plating 1'-8" to Water Ballast Tank top Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 11'-10 3/8" Length 11'-6" Shell plates: Material Steel Tensile strength 29/33 tons

Thickness 13/16" Are the shell plates welded or flanged No Description of riveting: circ. seams { end D.R. Lap. inter. ✓

long. seams J.R. Double Butt Strap Diameter of rivet holes in { circ. seams 1" dia. ✓ long. seams 7/8" " Pitch of rivets { 3.278" 6 3/8" ✓

Percentage of strength of circ. end seams { plate 69% ✓ rivets 46.7% ✓ Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓

Percentage of strength of longitudinal joint { plate 86.2% ✓ rivets 86.6% ✓ combined 89.7% ✓ Working pressure of shell by Rules 153 lbs

Thickness of butt straps { outer 3/8" ✓ inner 3/4" ✓ No. and Description of Furnaces in each Boiler Two Corrugated - Deighton Section

Material Steel Tensile strength 26/30 tons Smallest outside diameter 3'-11 1/2"

Length of plain part { top 9 1/4" ✓ bottom 9 1/4" ✓ Thickness of plates { crown 15/32" ✓ bottom 15/32" ✓ Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom None Working pressure of furnace by Rules 152 lbs

End plates in steam space: Material Steel Tensile strength 26/30 tons Thickness 6/64" Pitch of stays 17' x 16"

How are stays secured Double Nuts & Washers. Working pressure by Rules 153 lbs

Tube plates: Material { front steel ✓ back steel ✓ Tensile strength { 26/30 tons ✓ Thickness { 7/8" ✓ 13/16" ✓

Mean pitch of stay tubes in nests 9.4" Pitch across wide water spaces 14" Working pressure { front 151 lbs. ✓ back 268 lbs. ✓

Girders to combustion chamber tops: Material Steel Tensile strength 28/32 tons Depth and thickness of girder

at centre 8 1/4" x (2 x 5/8") Length as per Rule 30.7" Distance apart 9" No. and pitch of stays

in each 2 - 9 3/8" Working pressure by Rules 171 lbs. Combustion chamber plates: Material Steel

Tensile strength 26/30 tons Thickness: Sides 5/8" ✓ Back 5/8" ✓ Top 5/8" ✓ Bottom 5/8" ✓

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

Working pressure by Rules 164 lbs. 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 13 1/2" x 9 3/8" Are stays fitted with nuts or riveted over Nuts

Working Pressure 166 lbs. Main stays: Material Steel Tensile strength 28/32 tons

Diameter { At body of stay, 2 1/2" ✓ or Over threads 2 1/2" ✓ No. of threads per inch 6 Area supported by each stay 292 sq"

Working pressure by Rules 157 lbs. Screw stays: Material Steel Tensile strength 26/30 tons

Diameter { At turned off part, 1 5/8" ✓ or Over threads 1 5/8" ✓ No. of threads per inch 9 Area supported by each stay 82 sq"



Working pressure by Rules 183 lbs Are the stays drilled at the outer ends No Margin stays: Diameter <sup>At turned off part,</sup> 1 3/4"  
 No. of threads per inch 9 Area supported by each stay 126 sq" Working pressure by Rules 180 lbs.  
 Tubes: Material Steel External diameter <sup>Plain</sup> 2 3/4" Thickness <sup>8 W.G.</sup> 5/16" No. of threads per inch 9  
 Pitch of tubes 3 3/4" Working pressure by Rules 165 lbs Manhole compensation: Size of opening  
 shell plate 20" X 16" Section of compensating ring 9 1/4" X 1" No. of rivets and diameter of rivet holes 40 - 1" dia.  
 Outer row rivet pitch at ends 7" Depth of flange if manhole flanged 3" Steam Dome: Material  
 Tensile strength Thickness of shell Description of longitudinal joint  
 Diameter of rivet holes Pitch of rivets Percentage of strength of joint <sup>Plate</sup>  
 Internal diameter Working pressure by Rules None Thickness of crown <sup>Rivets</sup>  
 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 <sup>Tubes</sup> None  
 Number of elements Material of tubes <sup>Steel forgings</sup>  
 Material of headers Tensile strength <sup>Steel castings</sup>  
 the boiler be worked separately None Thickness  
 Area of each safety valve Is a safety valve fitted to every part of the superheater which can be shut off and  
 Rules Pressure to which the safety valves are adjusted Working pressure as per  
 tubes forgings and castings and after assembly in place Hydraulic test pressure  
 valves fitted to free the superheater from water where necessary Are drain cocks open

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with yes  
 FOR AND ON BEHALF OF  
 THE CALEDON SHIPBUILDING & ENGINEERING CO. LTD.  
 The foregoing is a correct description,  
Henry Main Manufacturer

Dates of Survey <sup>During progress of</sup> work in shops --  
 while building <sup>During erection on</sup> board vessel ---  
 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)  
 Total No. of visits

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. "Gold Ranger" Rpt No 9239

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)  
 This Boiler has been constructed under Special Survey in accordance with the Rules & the approved plan. The materials & workmanship are good, & the boiler was found tight & sound under hydraulic pressure.  
 It has been efficiently fitted on board, & its safety valves have been adjusted under steam for the working pressure of 150 lbs per sq. in. In my opinion it is eligible to be classed in the Register Book with the record of D. B. S. 1-42.

Survey Fee ... .. £ 11 : 4 : 0 } When applied for See Mach<sup>y</sup>  
 Travelling Expenses (if any) £ : : } When received, Report 19

John Houston  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 10 FEB 1942 AM  
 Assigned SEE ACCOMPANYING MACHINERY REPORT.

