

# REPORT ON BOILERS.

No. 9285

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  
eg. Book. (Number of Visits 14) Gross 3313 Tons Net 1506

4538 on the R.F.A. "GREEN RANGER"

Master Built at Dundee By whom built Caledon S.B. & Co. Ltd Yard 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 Caledon S.B. & Co. Ltd Boiler No. 591 When made 1942  
Nominal Horse Power of Boilers 148 Owners The Admiralty Port belonging to London

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY. (Composite)

Manufacturers of Steel Colvilles Ltd (Letter for Record (S) Exhaust Gas)

Total Heating Surface of Boilers 2800 ft<sup>2</sup> Is forced draught fitted Yes Coal or Oil fired Oil Working Pressure 150 lbs

No. and Description of Boilers one Single-Ended Multitubular

Tested by hydraulic pressure to 275 lbs Date of test 1-9-41 No. of Certificate 1044 Can each boiler be worked separately Yes

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

Area of each set of valves per boiler Approved 15.64 per ordinary 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 Boiler 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 13'-4 13/16" Length 11'-6" Shell plates: Material Steel Tensile strength 29/33 tons

Thickness 29/32" Are the shell plates welded or flanged No Description of riveting: circ. seams 3-5/32" end R. Lap. inter. 6 5/8"

long. seams J.R. Double Butt Straps Diameter of rivet holes in circ. seams 1 1/8" Pitch of rivets 6 5/8" long. seams 15/16"

Percentage of strength of circ. end seams plate 68% rivets 46.75% Percentage of strength of circ. intermediate seam plate rivets 85.84% 85.4% Working pressure of shell by Rules 152 lbs combined 88.5%

Thickness of butt straps outer 1 1/16" inner 13/16" No. and Description of Furnaces in each Boiler Two Corrugated-Deighton Section

Material Steel Tensile strength 26/30 tons Smallest outside diameter 3'-5 1/2"

Length of plain part top 4 3/8" bottom Thickness of plates crown 7/16" bottom Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom None Working pressure of furnace by Rules 163 lbs

End plates in steam space: Material Steel Tensile strength 26/30 tons Thickness 1 1/16" Pitch of stays 20" x 17"

How are stays secured Double Nuts & Washers Working pressure by Rules 152 lbs

Tube plates: Material front back Steel Tensile strength 26/30 tons Thickness 27/32" 1 1/16"

Mean pitch of stay tubes in nests Gas Chamber 9 1/16" Pitch across wide water spaces 13 1/2" Working pressure front 155 lbs back 200 lbs

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

at centre 8" x (2 x 5/8") Length as per Rule 27 3/4" Distance apart 10" No. and pitch of stays

in each 2 - 8 1/2" Working pressure by Rules 178 lbs Combustion chamber plates: Material Steel

Tensile strength 26/30 tons Thickness: Sides 7/8" Back 9/16" Top 5/8" Bottom 5/8"

Pitch of stays to ditto: Sides 9 1/2" x 9" Back 8 1/2" x 8 1/4" Top 10" x 8 1/2" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 154 lbs Front plate at bottom: Material Steel Tensile strength 26/30 tons

Thickness 27/32" Lower back plate: Material Steel Tensile strength 26/30 tons Thickness 3/4"

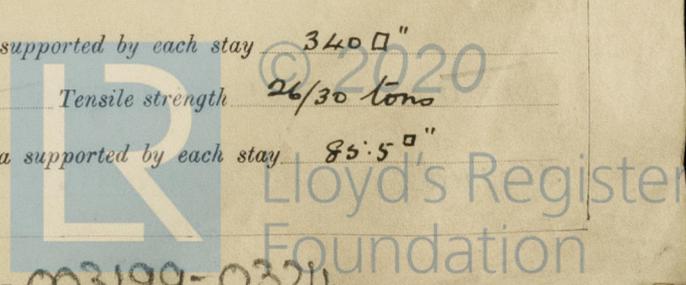
Pitch of stays at wide water space 13 1/2" x 8 1/4" Are stays fitted with nuts or riveted over Nuts

Working Pressure 181 lbs Main stays: Material Steel Tensile strength 28/32 tons

Diameter At body of stay, 2 1/2" No. of threads per inch 6 Area supported by each stay 340 in<sup>2</sup> Over threads 2 3/4"

Working pressure by Rules 156 lbs Screw stays: Material Steel Tensile strength 26/30 tons

Diameter At turned off part, 1 1/2" No. of threads per inch 9 Area supported by each stay 85.5 in<sup>2</sup> Over threads



Working pressure by Rules 175 lbs Are the stays drilled at the outer ends No Margin stays: Diameter <sup>At turned off part,</sup> 1 5/8"  
 No. of threads per inch 9 Area supported by each stay 90 3/4" Working pressure by Rules 163 lbs  
 Tubes: Material Steel External diameter <sup>Plain 2 1/2"</sup> 2" In Gas Thickness <sup>Stay 2 1/2"</sup> 2" Chamber 5/16" + 3/8" No. of threads per inch 9  
 Pitch of tubes 3 5/8", 3" in Gas Chamber Working pressure by Rules 164 lbs Manhole compensation: Size of opening  
 shell plate 20" X 16" Section of compensating ring 9 1/2" X 1" No. of rivets and diameter of rivet holes 40 - 1"  
 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> Steel forgings  
 Number of elements Material of tubes <sup>Steel castings</sup> Internal diameter and thickness of tubes  
 Material of headers Tensile strength Thickness  
 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 casing gear Working pressure as per  
 Rules Pressure to which the safety valves are adjusted Hydraulic test pressure  
 tubes forgings and castings and after assembly in place Are drain cocks  
 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 Yes  
 FOR AND ON BEHALF OF  
 THE CALEDON SHIPBUILDING & ENGINEERING CO. LTD.  
 The foregoing is a correct description,  
Henry Main Managing 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 ... .. £ 14 : 16 : 0 } When applied for, See  
 Travelling Expenses (if any) £ : : } When received, Mach<sup>y</sup> Report.

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

Committee's Minute GLASGOW 10 FEB 1942 AM

Assigned SEE ACCOMPANYING MACHINERY REPORT.

