

REPORT ON BOILERS.

No. 9285

Received at London Office

12 FEB 1942

Date of writing Report 29th Jan 1942 When handed in at Local Office 5th Feb 1942 Port of Dundee

No. in Survey held at Dundee

Date, First Survey 16th April

Last Survey 1st Sept 1941

in shops.

(Number of Visits 14)

Gross 3313

Net 1506

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

Master Built at Dundee

By whom built Caledon S.B. & E. 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. & E. Co. Ltd

Boiler No. 591 When made 1942

Normal 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 ft²

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 1044

Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 4.95 ft²

No. and Description of safety valves to each boiler Double High Lift

Area of each set of valves per boiler 4.95 ft²

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 two 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

long, seams J.R. Double Butt Straps

Diameter of rivet holes in 1 1/8"

Pitch of rivets 3.534"

Percentage of strength of circ. end seams

plate 68% rivets 46.75%

Percentage of strength of circ. intermediate seam

Percentage of strength of longitudinal joint

plate 85.84% rivets 85.4% combined 88.5%

Working pressure of shell by Rules 152 lbs

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 4 3/8"

Thickness of plates crown 7/16" bottom 7/16"

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 Steel back Steel

Tensile strength 26/30 tons

Thickness 27/32" 1 1/16"

Mean pitch of stay tubes in nests 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 7/8")

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"

Over threads 2 3/4"

No. of threads per inch 6

Area supported by each stay 340 in²

Working pressure by Rules 156 lbs

Screw stays: Material Steel

Tensile strength 26/30 tons

Diameter At turned off part, 1 1/2"

Over threads 1 1/2"

No. of threads per inch 9

Area supported by each stay 85.5 in²

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Lloyd's Register Foundation

Working pressure by Rules 175 lbs Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, or Over threads 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 { Plain 2 1/2" | 2" In Gas Chambers Thickness { 9 W.G. | 5/16" + 3/8" No. of threads per inch 9
 Pitch of tubes 3 5/8", 3" in Gas Chambers 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 { Plate Rivets
 Internal diameter Working pressure by Rules None Thickness of crown No. and diameter
 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 forgings Steel castings
 Number of elements Material of tubes 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 easing 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 { During progress of work in shops - - - } 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

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^y Report.

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

Committee's Minute GLASGOW 10 FEB 1942 AM

Assigned SEE ACCOMPANYING MACHINERY REPORT