

REPORT ON BOILERS.

No. 9258

16 OCT 1941

Received at London Office

Date of writing Report 9th Oct 1941 When handed in at Local Office 9th Oct 1941 Port of Dundee

No. in Survey held at Dundee Date, First Survey 21th Dec 1940 Last Survey 26th June 1941

530 on the R.F.A. "GRAY RANGER" (Number of Visits 26) ^{in shops.} Tons { Gross 3313 Net 1506

Built at Dundee By whom built Baledon S. B. & E. Co. Ltd Ward No. 390 When built 1941

Engines made at Sunderland By whom made Wm Doxford & Sons Ltd Engine No. 218 When made 1941

Boilers made at Dundee By whom made Baledon S. B. & E. Co. Ltd Boiler No. 590 When made 1941

Indicated Horse Power 112 Owners The Admiralty Port belonging to London

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Edwille's Ltd (Letter for Record S.)

Total Heating Surface of Boilers 1675 ^{sq ft} Is forced draught fitted yes Coal or Oil fired oil

Description of Boilers One Single-ended Multitubular Working Pressure 150 lbs

Tested by hydraulic pressure to 275 lbs. Date of test 20-6-41 No. of Certificate 1041 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 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 11-10³/₈ " 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 Straps Diameter of rivet holes in { circ. seams 1" dia. long. seams 7/8" Pitch of rivets { 3-278" 63/8"

Percentage of strength of circ. end seams { plate 69.7 rivets 46.7 Percentage of strength of circ. intermediate seam { plate 86.2 rivets 86.6 combined 89.7

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 5/8" inner 3/4" No. and Description of Furnaces in each Boiler Two Corrugated - Reighton Section

Material Steel Tensile strength 26/30 tons Smallest outside diameter 3'-11¹/₂ "

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 61/64 " Pitch of stays 17" X 16"

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

End 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.

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

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

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"

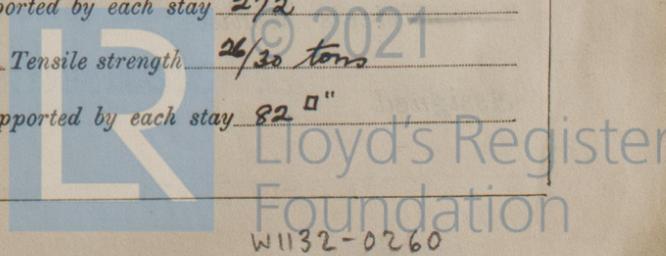
Pitch of stays at wide water space 13 1/2" X 9 3/8" Are stays fitted with nuts or riveted over Nuts

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

Diameter { At body of stay, 2 1/4" or Over threads 2 1/2" No. of threads per inch 6 Area supported by each stay 272 "²

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 "²



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Working pressure by Rules 183 lbs Are the stays drilled at the outer ends No Margin stays: Diameter ^{At turned off part,} 1 3/4" _{or Over threads}

No. of threads per inch 9 Area supported by each stay 126 sq" Working pressure by Rules 180 lbs

Tubes: Material Steel External diameter ^{Plain} 2 3/4" Thickness ^{Stay} 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 13/16" 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 ^{Plate} _____ _{Rivets} _____

Internal diameter _____ Working pressure by Rules None Thickness of crown _____ No. and diameter of stays _____

How connected to shell _____ Inner radius of crown _____ Working pressure by Rules _____

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 at the boiler be worked separately _____

Is a safety valve fitted to each 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 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,

 Director/Manufacture

Dates of Survey ^{1940 1941} During progress of work in shops - - Dec 21, Jan 10, 14, Feb 7, 11, 21, Mar 19, 21, Apr 9, 16, 23, 30, May 5, 8, 19, 22, 25, 27, 30, June 2, 5, 9, 13, 16, 20, 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 - - -} See Mach^y Report. Total No. of visits in Boiler Shop 26

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. R. & A. 'Gold Ranger' Rpt N° 9234

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. inch.

In my opinion it is eligible to be classed in the Register Book with the record of D.B.S. 9-41.

Survey Fee £ 11 : 4 : 0 | When applied for, see Mach^y Report 19

Travelling Expenses (if any) £ : : | When received, _____ 19

John Houston
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **GLASGOW 14 OCT 1941** 73

Assigned **SEE ACCOMPANYING MACHINERY REPORT.**

