

# REPORT ON BOILERS.

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Date of writing Report 30<sup>th</sup> Oct. 1940. When handed in at Local Office 2<sup>nd</sup> Nov. 1940. Port of Greenock.

No. in Reg. Book. Survey held at Greenock Date, First Survey 11<sup>th</sup> DECEMBER, 1939. Last Survey 28<sup>th</sup> OCTOBER, 1940.

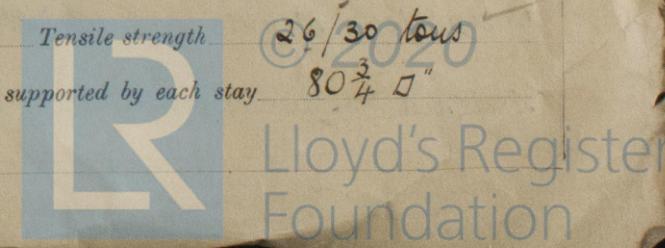
(Number of Visits ) (Gross 5237 Tons) (Net 3076)

on the AIRCREST

Master Built at Port Glasgow By whom built Messrs Lithgows Ltd. Yard No. 936 When built 1940  
 Engines made at Greenock By whom made Messrs Rankin & Blackmore Ltd. Engine No. 470 When made 1940  
 Boilers made at Greenock By whom made Messrs Rankin & Blackmore Ltd. Boiler No. 470 When made 1940  
 Nominal Horse Power 436 Owners Crest Shipping Co. Ltd. Port belonging to London.

## MULTITUBULAR BOILERS—MAIN, ~~AUXILIARY~~, OR DONKEY.

Manufacturers of Steel Colvilles Ltd. Horseley Budge and Thomas Piggot Ltd. (Letter for Record 5)  
 Total Heating Surface of Boilers 5830 sq ft Is forced draught fitted Yes Coal or Oil fired Coal  
 No. and Description of Boilers 2 - SE Cylindrical Working Pressure 220 lbs  
 Tested by hydraulic pressure to 380 lbs Date of test 23/25/7/40 No. of Certificate 2211, 2212 Can each boiler be worked separately Yes  
 Area of Firegrate in each Boiler 67 sq ft No. and Description of safety valves to each boiler 2 Cocksburns Improved High Lift  
 Area of each set of valves per boiler per Rule 9.4 sq ft Pressure to which they are adjusted 220 lbs Are they fitted with easing gear Yes  
 In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No  
 Smallest distance between boilers or uptakes and bunkers or woodwork 24" Is oil fuel carried in the double bottom under boilers No  
 Smallest distance between shell of boiler and tank top plating 2-2" Is the bottom of the boiler insulated Yes  
 Largest internal dia. of boilers 16'-3" Length 12'-0" Shell plates: Material S Tensile strength 29/33 tons  
 Thickness 1 19/32" Are the shell plates welded or flanged No Description of riveting: circ. seams end D.R.  
 long. seams T.R.D.B.S. Diameter of rivet holes in circ. seams 1 5/8" Pitch of rivets 4 23/32"  
 Percentage of strength of circ. end seams plate 61.5 Percentage of strength of circ. intermediate seam plate  
rivets 48.7 rivets  
 Percentage of strength of longitudinal joint plate 85.3 Working pressure of shell by Rules 226 lbs  
rivets 87.2  
combined 88.1  
 Thickness of butt straps outer 1 1/4" No. and Description of Furnaces in each Boiler 4 Corrugated, Reighton Section  
inner 1 3/8" Tensile strength 26/30 tons Smallest outside diameter 3'-5 5/16"  
 Material S Thickness of plates crown 21/32" Description of longitudinal joint Weld  
 Length of plain part top Thickness of plates bottom 3/32" Working pressure of furnace by Rules 232 lbs  
 Dimensions of stiffening rings on furnace or c.c. bottom — Working pressure of furnace by Rules 232 lbs  
 End plates in steam space: Material S Tensile strength 26/30 tons Thickness 1 15/32" Pitch of stays 22" x 20"  
 How are stays secured D. nuts and Washers Working pressure by Rules 229 lbs  
 Tube plates: Material front S Tensile strength 26/30 tons Thickness 1 13/16"  
back Working pressure by Rules 244 lbs  
 Mean pitch of stay tubes in nests 9 3/4" Pitch across wide water spaces 14" Working pressure front 244 lbs  
back 250 lbs  
 Girders to combustion chamber tops: Material S Tensile strength 29/33 tons Depth and thickness of girder  
 at centre 10 1/2" x 1 1/2" Length as per Rule 34 7/16" Distance apart 9" wings No. and pitch of stays  
 in each 3 - 8 1/2" Working pressure by Rules 230 lbs 9 1/2" centre  
 Tensile strength 26/30 tons Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 7/8"  
 Pitch of stays to ditto: Sides 9 1/2" x 8 1/2" Back 9 1/2" x 8 1/2" Top 9 1/2" x 8 1/2" Are stays fitted with nuts or riveted over Nuts  
 Working pressure by Rules 244 lbs Front plate at bottom: Material S Tensile strength 26/30 tons  
 Thickness 1 1/32" Lower back plate: Material S Tensile strength 26/30 tons Thickness 1"  
 Pitch of stays at wide water space 14 1/4" x 9 1/2" Are stays fitted with nuts or riveted over Nuts  
 Working Pressure 220 lbs Main stays: Material S Tensile strength 28/32 tons  
 Diameter At body of stay, 3 1/2" No. of threads per inch 6 Area supported by each stay 418 sq in  
Over threads Working pressure by Rules 226 lbs Screw stays: Material S Tensile strength 26/30 tons  
 Diameter At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 80 3/4 sq in  
Over threads



Working pressure by Rules 225 lbs Are the stays drilled at the outer ends No Margin stays: Diameter <sup>At turned off part,</sup> 2" <sub>or</sub> <sup>Over threads</sup> 2"  
 No. of threads per inch 9 Area supported by each stay 108 sq" Working pressure by Rules 229 lbs  
 Tubes: Material N. 1. External diameter <sup>Plain</sup> 3" Thickness <sup>8 r. g.</sup> 5" 6 3/8" No. of threads per inch 9  
 Pitch of tubes 4 1/4" x 4 1/8" Working pressure by Rules 250 lbs Manhole compensation: Size of opening in shell plate 16" x 12" Section of compensating ring 2'-9" x 2'-6" x 1 1/2" No. of rivets and diameter of rivet holes 28 - 1 5/8"  
 Outer row rivet pitch at ends 11 1/6" Depth of flange if manhole flanged — 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> — <sub>Rivets</sub>  
 Internal diameter — Working pressure by Rules — Thickness of crown — No. and diameter of stays —  
 How connected to shell — Inner radius of crown — Working pressure by Rules —  
 of rivets in outer row in dome connection to shell — Size of doubling plate under dome — Diameter of rivet holes and pitch —

Type of Superheater Smoke tube Manufacturers of <sup>Tubes</sup> Messrs Superheater Co. Ltd <sup>Steel forgings</sup> Messrs Superheater Co. Ltd <sup>Steel castings</sup> —  
 Number of elements 144 Material of tubes S. D. steel Internal diameter and thickness of tubes 17 1/4" x 2 3/8"  
 Material of headers M. S. Billets Tensile strength — Thickness 1 1/8" Can the superheater be shut off and the boiler be worked separately Yes Is a safety valve fitted to every part of the superheater which can be shut off from the boiler Yes  
 Area of each safety valve 3.14 sq" Are the safety valves fitted with easing gear Yes Working pressure as per Rules 220 lbs Pressure to which the safety valves are adjusted 220 lbs Hydraulic test pressure: tubes 1000 lbs forgings and castings 660 lbs and after assembly in place 550 lbs Are drain cocks or valves fitted to free the superheater from water where necessary Yes  
 Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes

The foregoing is a correct description,  
 RANKIN & BLACKMORE LTD. Manufacturer.  
 W. J. Smith Managing Director

Dates of Survey <sup>During progress of work in shops - -</sup> — <sup>while building</sup> <sup>During erection on board vessel - - -</sup> —  
 SEE MACHINERY REPORT. 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 No If so, state Vessel's name and Report No. —

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been built under Special Survey, in accordance with the approved plans. The materials and workmanship are good. For recommendation please see Machinery Report.

Survey Fee ... — When applied for, 19  
 Travelling Expenses (if any) — When received, 19  
*Charged in Machinery Report*

M. Caldwell.  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 5 NOV 1940

Assigned SEE ACCOMPANYING MACHINERY REPORT.

