

# REPORT ON BOILERS.

No. 65646

Received at London Office

17 JUN 1942

Date of writing Report 19 When handed in at Local Office 16.6.42 Port of Glasgow  
 No. in Reg. Book. Glasgow Survey held at Glasgow Date, First Survey 18th July Last Survey 14th May 1942  
 on the S/S "EMPIRE GALAHAD" (Number of Visits 7) Gross Tons      Net Tons       
 Master      Built at Port Glasgow By whom built Messrs Lithgows Ltd Yard No. 970 When built 1942  
 Engines made at Greenock By whom made Messrs John G. Kincaid & Co Ltd Engine No. 733 When made 1942  
 Boilers made at Glasgow By whom made Messrs David Rowan & Co Ltd Boiler No. 8467 When made 1942  
 Nominal Horse Power      Owners      Port belonging to     

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colvilles Ltd (Letter for Record S)  
 Total Heating Surface of Boilers 2416 sq ft Is forced draught fitted Yes Coal or Oil fired Coal  
 No. and Description of Boilers One single ended Working Pressure 220 lbs/sq in  
 Tested by hydraulic pressure to 380 lbs/sq in Date of test 15-4-42 No. of Certificate 21032 Can each boiler be worked separately Yes  
 Area of Firegrate in each Boiler 55 sq ft No. and Description of safety valves to each boiler one - 3" double spring loaded  
 Area of each set of valves per boiler per Rule 12.85 sq ft as fitted 14.12 sq ft Pressure to which they are adjusted      Are they fitted with easing gear Yes  
 In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork      Is oil fuel carried in the double bottom under boilers Yes  
 Smallest distance between shell of boiler and tank top plating      Is the bottom of the boiler insulated Yes  
 Largest internal dia. of boilers 15'-0 1/8" Length 11'-6" Shell plates: Material S Tensile strength 29/33 Tons/sq in  
 Thickness 1 7/16" Are the shell plates welded or flanged No Description of riveting: circ. seams DR. Lap  
 long. seams T.R.O. BS. Diameter of rivet holes in circ. seams 1 1/2" long. seams 1 1/2" Pitch of rivets BE = 4.13" FE = 3.435"  
 Percentage of strength of circ. end seams plate BE = 63.68; FE = 60.0 rivets BE = 47.2; FE = 47.8 Percentage of strength of circ. intermediate seam plate rivets  
 Percentage of strength of longitudinal joint plate 85.36 rivets 89.0 combined 88.5 Working pressure of shell by Rules Yes  
 Thickness of butt straps outer 1 3/32" inner 1 7/32" No. and Description of Furnaces in each Boiler 3 Deighton Section  
 Material S Tensile strength 26/30 Tons/sq in Smallest outside diameter 3'-9 3/8"  
 Length of plain part top bottom Thickness of plates crown 1/16" bottom 1/16" Description of longitudinal joint Welded  
 Dimensions of stiffening rings on furnace or c.c. bottom      Working pressure of furnace by Rules Yes  
 End plates in steam space: Material S Tensile strength 26/30 Tons/sq in Thickness 1 3/8" Pitch of stays 22" x 19"  
 How are stays secured Double nuts Working pressure by Rules 15"  
 Tube plates: Material S Tensile strength 26/30 Tons/sq in Thickness 25/32"  
 Mean pitch of stay tubes in nests 9.7" Pitch across wide water spaces 14" Working pressure front back  
 Girders to combustion chamber tops: Material S Tensile strength 28/32 Tons/sq in Depth and thickness of girder  
 at centre 2 @ 8 3/4" x 7/8" Length as per Rule 2' 9 1/2" Distance apart 8" No. and pitch of stays  
 in each 3 @ 8 1/4" Working pressure by Rules      Combustion chamber plates: Material S  
 Tensile strength 26/30 Tons/sq in Thickness: Sides 21/32" Back 23/32" Top 21/32" Bottom 13/16"  
 Pitch of stays to ditto: Sides 8 1/4" x 8" Back 10" x 8" Top 8" x 8 1/4" 7 1/2" x 8 1/4" Are stays fitted with nuts or riveted over Nuts  
 Working pressure by Rules Yes Front plate at bottom: Material S Tensile strength 26/30 Tons/sq in  
 Thickness 15/16" Lower back plate: Material S Tensile strength 26/30 Tons/sq in Thickness 13/16"  
 Pitch of stays at wide water space 13 7/16" Are stays fitted with nuts or riveted over Nuts  
 Working Pressure Yes Main stays: Material S Tensile strength 28/32 Tons/sq in  
 Diameter At body of stay, 4 @ 3 1/4"; 6 @ 3" No. of threads per inch 6 Area supported by each stay  
 Working pressure by Rules Yes Screw stays: Material S Tensile strength 26/30 Tons/sq in  
 Diameter At turned off part, 1 5/8" & 1 3/4" No. of threads per inch 9 Area supported by each stay

Working pressure by Rules  Are the stays drilled at the outer ends *no* Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. 1\frac{7}{8}, 2, 2\frac{1}{4} \text{ " at back top corner}$

No. of threads per inch *9* Area supported by each stay *3"* Working pressure by Rules *8 W.C.*

Tubes: Material *S* External diameter  $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. 3"$  Thickness  $\left\{ \begin{array}{l} \frac{1}{4}, \frac{5}{16}, \frac{3}{8} \end{array} \right.$  No. of threads per inch *9*

Pitch of tubes *4\frac{3}{16} " x 4\frac{1}{8} "* Working pressure by Rules  Manhole compensation: Size of opening in *2\frac{1}{2} " x 12"* shell-plate Section of compensating ring  No. of rivets and diameter of rivet holes

Outer row rivet pitch at ends  Depth of flange if manhole flanged *4"* Steam Dome: Material

Tensile strength \_\_\_\_\_ Thickness of shell \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_

Diameter of rivet holes \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Percentage of strength of joint  $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$

Internal diameter \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_ Thickness of crown \_\_\_\_\_ No. and diameter of 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  $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right.$

Number of elements \_\_\_\_\_ Material of tubes \_\_\_\_\_ Internal diameter and thickness of tubes \_\_\_\_\_

Material of headers \_\_\_\_\_ Tensile strength \_\_\_\_\_ Thickness \_\_\_\_\_ Can the superheater be shut off and the boiler be worked separately \_\_\_\_\_

Area of each safety valve \_\_\_\_\_ Are the safety valves fitted with easing gear \_\_\_\_\_ Working pressure as per Rules \_\_\_\_\_

tubes \_\_\_\_\_ Pressure to which the safety valves are adjusted \_\_\_\_\_ Hydraulic test pressure: \_\_\_\_\_

\_\_\_\_\_ forgings and 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 \_\_\_\_\_

The foregoing is a correct description,  
*For David Rowan & Co*  
*Arch. N. Grierson* Manufacturer.

Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right. \left\{ \begin{array}{l} \text{1942 Feb: 18 Mar: 2, 16, 31 Apr:} \\ \text{16 May: 11, 14} \end{array} \right.$  Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

Total No. of visits *7*

Is this Boiler a duplicate of a previous case \_\_\_\_\_ If so, state Vessel's name and Report No. \_\_\_\_\_

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

*This boiler has been built under Special Survey and in accordance with the Rules. The materials and workmanship are good. On completion it has been tested by hydraulic pressure with satisfactory results.*

*It has been despatched to Port Glasgow for installing on board ship.*

*This boiler was one of those originally intended for Rowan's Contract no 1095, under which all the material was ordered and delivered. As the remaining boilers have not yet been completed, the invoices are being withheld meantime.*

*The requirements of the M.O.S. Specification have been satisfactorily carried out.*

Survey Fee ... *£ 16 : 2 : 0* When applied for, *16 JUN 1942*

Travelling Expenses (if any) *£ 4* : : : When received, *19*

*H.P. Gibbeson*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 16 JUN 1942*

Assigned *Deferred for completion*

