

REPORT ON BOILERS.

No. 64680

Received at London Office 19 NOV 1941

Date of writing Report 17. 11. 1941 When handed in at Local Office 17. 11. 1941 Port of Glasgow

No. in Reg. Book 508 Survey held at Glasgow Date, First Survey 13. 6. 41 Last Survey 5. 11. 1941

on the EMPIRE CADET. (Number of Visits 10) Tons Gross Net

Master Built at Grangemouth By whom built Grangemouth Dry Dock Yard No. 436 When built

Engines made at By whom made Engine No. When made

Boilers made at Glasgow By whom made J. & D. Roman & Co. Ltd Boiler No. 3456 When made 1941

Nominal Horse Power Owners Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Wad Company Scotland (Letter for Record S)

Total Heating Surface of Boilers 2100 sq ft Is forced draught fitted Yes Coal or Oil fired Oil

No. and Description of Boilers One single ended Working Pressure 190 lbs

Tested by hydraulic pressure to 335 lbs Date of test 26/10/41 No. of Certificate 20897 Can each boiler be worked separately

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 3 Ordinary Double Spring

Area of each set of valves per boiler Pressure to which they are adjusted 190 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 2' 1" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and shell tank top plating 3' 6" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 14' 6" Length 11' 6" Shell plates: Material S Tensile strength 27-33 Tons

Thickness 1 3/32" Are the shell plates welded or flanged No Description of riveting: circ. seams DR. overlap

long. seams P.B.S. TR Diameter of rivet holes in circ. seams 3 1/16" F. 1 3/16" Pitch of rivets 3.328" F. 3.2"

Percentage of strength of circ. end seams rivets 85.3 Percentage of strength of circ. intermediate seam rivets 92.5

Percentage of strength of longitudinal joint rivets 89.1 Working pressure of shell by Rules

Thickness of butt straps outer 5/16" inner 1 3/16" No. and Description of Furnaces in each Boiler 3 Duglton

Material S Tensile strength 26-30 Tons Smallest outside diameter 42 1/8"

Length of plain part top bottom Thickness of plates crown 9/16" bottom Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules

End plates in steam space: Material S Tensile strength 26-30 Tons Thickness 1 1/4" Pitch of stays 20 1/2" x 18 1/2"

How are stays secured double nuts Working pressure by Rules

Tube plates: Material S Tensile strength 26-30 Tons Thickness 24/32" 3/4"

Mean pitch of stay tubes in nests 9 1/8" Pitch across wide water spaces 13 3/4" Working pressure front back

Girders to combustion chamber tops: Material S Tensile strength 28-32 Tons Depth and thickness of girder

at centre 10' x 1 3/4" Length as per Rule 39 9/16" Distance apart 9 1/4" No. and pitch of stays

in each 3 @ 10" Working pressure by Rules Combustion chamber plates: Material S

Tensile strength 26-30 Tons Thickness: Sides 23/32" Back 11/16" Top 23/32" Bottom 23/32"

Pitch of stays to ditto: Sides 10' x 9 1/4" Back 9 3/4" x 8 1/4" Top 10' x 9 1/4" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules Front plate at bottom: Material S Tensile strength 26-30 Tons

Thickness 24/32" Lower back plate: Material S Tensile strength 26-30 Tons Thickness 25/32"

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

Working Pressure Main stays: Material S Tensile strength 28-32 Tons

Diameter At body of stay 3" + 2 3/4" No. of threads per inch 6 Area supported by each stay

Working pressure by Rules Screw stays: Material S Tensile strength 26-30 Tons

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 190 & 196 Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part. or Over thread $1\frac{1}{4} \times 1\frac{3}{8}$ }
 No. of threads per inch 9 Area supported by each stay Working pressure by Rules
 Tubes: Material S External diameter { Plain 2 3/4 Stay 2 1/2 } Thickness { 5/16 + 3/32 } No. of threads per inch 9
 Pitch of tubes 4 x 3 3/8 Working pressure by Rules Manhole compensation: Size of opening in shell plate 19 1/2 x 15 1/2 Section of compensating ring 9 1/2 x 1 1/2 No. of rivets and diameter of rivet holes 34 @ 1 5/16
 Outer row rivet pitch at ends 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 { Plate Rivets }
 Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays Working pressure by Rules
 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 forgings 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 and 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 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 T.C. & Co. Manufacturer.
 Arch. H. Grierson

Dates of Survey { During progress of work in shops - - } 1941 June: 13-20 July: 6-16 Aug: 22
 { During erection on board vessel - - - } Sep: 16 Oct: 3-17 Nov: 5
 Are the approved plans of boiler and superheater forwarded herewith 9-11-40 (If not state date of approval.)
 Total No. of visits 10

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. EMPIRE LASS G.R. No 64794

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. Specification requirements carried out. It has been forwarded to Grangemouth for fitting on board.

Survey Fee £ 14 : - : - When applied for, 18 NOV 1941
 Travelling Expenses (if any) £ 3 : 10 : - When received, 2. 1. 1942

Prof. J. Munn for A. J. Brown & W. Russell
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 18 NOV 1941

Assigned *Agreed*

