

REPORT ON BOILERS.

23 SEP 1943

Received at London Office

Date of writing Report 1st SEPT. 1943. When handed in at Local Office 20th SEPT. 1943. Port of Greenock.

No. in Reg. Book. Surrey held at Greenock Date, First Survey 18th AUGUST 1942 Last Survey 17th SEPTEMBER 1943.

on the "MAHADEVI" (Number of Visits ✓) Gross 5459.42 Tons Net 3005.00

Built at Port Glasgow By whom built Lithgows Ltd. Yard No. 974 When built 1943
Engines made at Greenock By whom made Raukin & Blackmore Ltd Engine No. 491 When made 1943
Boilers made at Greenock By whom made Raukin & Blackmore Ltd. Boiler No. 491 When made 1943
Nominal Horse Power 517. Owners Asiatic Steam Navigation Co. Ltd. Port belonging to London.

MULTITUBULAR BOILERS - MAIN, AUXILIARY OR DONKEY.

Manufacturers of Steel Colvilles Ltd (Letter for Record S.)

Total Heating Surface of Boilers 7266. # Is forced draught fitted Yes Coal or Oil fired Coal

No. and Description of Boilers 3 Cylindrical multitubular Working Pressure 230 lbs

Tested by hydraulic pressure to 395 lbs Date of test 2-30/3/43 No. of Certificate 2326 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 53.5 No. and Description of safety valves to each boiler 2. Improved High Lift.

Area of each set of valves per boiler {per Rule 5.22 sq" as fitted 7.94 sq" Pressure to which they are adjusted 230 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 2'-6" Is oil fuel carried in the double bottom under boilers No.

Smallest distance between shell of boiler and tank top plating 2'-3" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 15'-1 7/16" Length 12'-3" Shell plates: Material S. Tensile strength 29/33 tons

Thickness 1 9/16" Are the shell plates welded or flanged No. Description of riveting: circ. seams {end D.R. inter. 4 3/32" long. seams T.R.O.B.S. Diameter of rivet holes in {circ. seams 1 9/16" long. seams 10 7/16"

Percentage of strength of circ. end seams {plate 63.0 rivets 46.0 Percentage of strength of circ. intermediate seam {plate 85.0 rivets 87.4 combined 87.5

Percentage of strength of longitudinal joint {plate 85.0 rivets 87.4 combined 87.5

Thickness of butt straps {outer 1 1/4" inner 1 3/8" No. and Description of Furnaces in each Boiler 3 Corrugated, Reighton Section

Material S. Tensile strength 26/30 tons Smallest outside diameter 3'-9 9/16"

Length of plain part {top 25" bottom 32" Thickness of plates {crown 25" bottom 32" Description of longitudinal joint Weld.

Dimensions of stiffening rings on furnace or c.c. bottom ✓

End plates in steam space: Material S. Tensile strength 26/30 tons Thickness 1 1/2" Pitch of stays 21" x 21"

How are stays secured Rowli Nuts and Washers.

Tube plates: Material {front S. back S. Tensile strength {26/30 tons Thickness {1" 7/8"

Mean pitch of stay tubes in nests 9 15/16" Pitch across wide water spaces 13 3/4"

Girders to combustion chamber tops: Material S. Tensile strength 29/33 tons Depth and thickness of girder at centre 12 1/2" x 1 5/8" Length as per Rule 41 1/32" Distance apart 10" No. and pitch of stays in each 4-8 1/2"

Combustion chamber plates: Material S. Tensile strength 26/30 tons Thickness: Sides 25/32" Back 25/32" Top 25/32" Bottom 7/8"

Pitch of stays to ditto: Sides 10" x 9" Back 9 3/4" x 9 1/4" Top 10" x 8 1/2" Are stays fitted with nuts or riveted over Nuts

Front plate at bottom: Material S. Tensile strength 26/30 tons Thickness 1"

Lower back plate: Material S. Tensile strength 26/30 tons Thickness 1"

Pitch of stays at wide water space 14" x 9 1/4" Are stays fitted with nuts or riveted over Nuts

Main stays: Material S. Tensile strength 28/32 tons

Diameter {At body of stay, or Over threads 3 5/8" No. of threads per inch 6

Screw stays: Material S. Tensile strength 26/30 tons

Diameter {At turned off part, or Over threads 2" No. of threads per inch 9



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Are the stays drilled at the outer ends No Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \underline{2\frac{1}{8} \text{ } 62\frac{1}{4} \text{ } \text{\"}}$

No. of threads per inch 9

Tubes: Material W. I. External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \underline{2\frac{3}{4} \text{ } \text{\"}}$ Thickness $\left\{ \begin{array}{l} \text{8 W.G.} \\ \underline{5\frac{1}{16} \text{ } \frac{3}{8} \text{ } \frac{7}{16} \text{ } \text{\"}} \end{array} \right. \text{No. of threads per inch } \underline{9}$

Pitch of tubes 4" x 3 $\frac{15}{16}$ " Manhole compensation: Size of opening in shell plate 16" x 12" Section of compensating ring 2'-9" x 2'-5" x 1 $\frac{9}{16}$ " No. of rivets and diameter of rivet holes 28-1 $\frac{9}{16}$ "

Outer row rivet pitch at ends 10 $\frac{7}{16}$ " 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 $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \text{_____}$

Internal diameter _____ Thickness of crown _____ No. and diameter of stays _____

How connected to shell _____ Inner radius of crown _____

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 $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right. \text{_____}$

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 easing gear _____

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 Yes.

The foregoing is a correct description,
Rankin & Blackmore Ltd., Manufacturer.
M. Caldwell Managing Director.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops - -} \\ \text{while} \\ \text{building} \end{array} \right. \left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel - - -} \end{array} \right. \text{SEE MACHINERY REPORT.}$

Are the approved plans of boiler and superheater forwarded herewith Yes.
 (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 rules and the approved plans. The materials and workmanship are good. For recommendation please see machinery report.

Survey Fee ... Charged as Machinery Report When applied for, 19

Travelling Expenses (if any) £ When received, 19

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

Committee's Minute GLASGOW 21 SEP 1945

Assigned _____

