

# REPORT ON BOILERS.

No. 34144

Received at London Office 26 FEB 1945

Date of writing Report 19 When handed in at Local Office 15 FEB 1945 Port of SUNDERLAND.

No. in Reg. Book. Survey held at SUNDERLAND. Date, First Survey Last Survey 12<sup>th</sup> Feb 1945. (Number of Visits) Gross 7309.66 Net 5094.32

on the 95- EMPIRE MAURITIUS Built at Sunderland By whom built Bartram & Son, Ltd. Yard No. 302 When built 1945. Engines made at Glasgow By whom made James Stewart & Co. Ltd. Engine No. 215 When made 1945. Boilers made at Sunderland By whom made R. S. Maxim Eng. Co. (1938), Ltd. Boiler No. 4100 When made 1945. Nominal Horse Power 509 Owners M. D. W. T. Macdonald, McIntyre, Ltd. Port belonging to Sunderland

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

Manufacturers of Steel Steel Company of Scotland (Letter for Record S ✓) Total Heating Surface of Boilers 4248 sq ft Is forced draught fitted yes ✓ Coal or Oil fired coal ✓ No. and Description of Boilers 3 Single ended cylindrical Working Pressure 220 lb. ✓ Tested by hydraulic pressure to 380 lb. Date of test 27.9.44 No. of Certificate 4565 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 2 Improved High Lift ✓ Area of each set of valves per boiler (per Rule 6.520" 6.420" as fitted 7.950") Pressure to which they are adjusted 220 lb. Are they fitted with easing gear yes ✓ In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler —

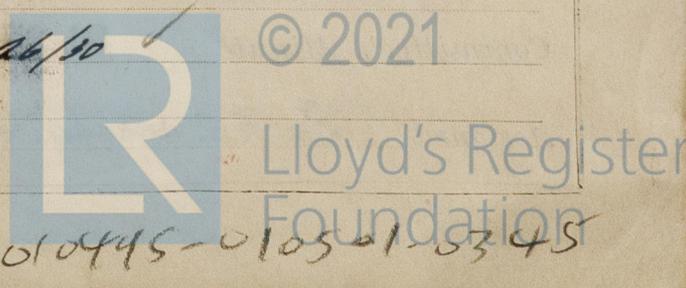
Smallest distance between boilers or uptakes and bunkers or woodwork 1'10" Is oil fuel carried in the double bottom under boilers no ✓ Smallest distance between shell of boiler and tank top plating 24" Is the bottom of the boiler insulated yes ✓ Largest internal dia. of boilers 15'-0 1/16" Length 11'-8 1/32" Shell plates: Material Steel ✓ Tensile strength 29/33 ✓ Thickness 1 1/32" Are the shell plates welded or flanged no ✓ Description of riveting: circ. seams { end D.P.L. ✓ inter. — } long. seams T.R.D.B.S. ✓ Diameter of rivet holes in { circ. seams 3 1/2" ✓ long. seams — } Pitch of rivets { 4/8" ✓ 10 3/8" ✓ } Percentage of strength of circ. end seams { plate 63.6 rivets 46.1 } Percentage of strength of circ. intermediate seam { plate — rivets — } Percentage of strength of longitudinal joint { plate 85.5 rivets 86.2 combined 88.3 }

Thickness of butt straps { outer 1 1/8" ✓ inner 1 1/4" ✓ } No. and Description of Furnaces in each Boiler 3 Single ended Stephan-Gurley make. ✓ Material Steel Tensile strength 26/30 Smallest outside diameter 3'-9 3/4" ✓ Length of plain part { top — bottom — } Thickness of plates { crown 1 1/16" ✓ bottom — } Description of longitudinal joint weld ✓ Dimensions of stiffening rings on furnace or c.c. bottom —

End plates in steam space: Material Steel ✓ Tensile strength 26/30 ✓ Thickness 1 13/32" Pitch of stays 19 3/4" x 19 5/8" ✓ How are stays secured double-nuts ✓ Tube plates: Material { front Steel ✓ back Steel ✓ } Tensile strength { 26/30 ✓ } Thickness { 15/16" ✓ 25/32" ✓ } Mean pitch of stay tubes in nests 9 7/8" Pitch across wide water spaces 14" x 8 1/4" ✓

Girders to combustion chamber tops: Material Steel ✓ Tensile strength 28/32 ✓ Depth and thickness of girder at centre 10 1/2" x 13 1/8" Length as per Rule 3 1/2" Distance apart 9 1/4" No. and pitch of stays in each 3 @ 8" ✓ Combustion chamber plates: Material Steel ✓ Tensile strength 26/30 ✓ Thickness: Sides 25/32" Back 25/32" Top 1 1/16" Bottom 7/8" ✓ Pitch of stays to ditto: Sides 9 1/4" x 8" Back 9 7/8" x 9 1/4" Top 9 1/4" x 8" Are stays fitted with nuts or riveted over nuts fitted ✓

Front plate at bottom: Material Steel ✓ Tensile strength 26/30 ✓ Thickness 15/16" Lower back plate: Material Steel ✓ Tensile strength 26/30 ✓ Thickness 15/16" ✓ Pitch of stays at wide water space 14 1/8" x 9 7/8" Are stays fitted with nuts or riveted over nuts fitted ✓ Main stays: Material Steel ✓ Tensile strength 28/32 ✓ Diameter { At body of stay, or Over threads 3 1/8" 3 1/2" } No. of threads per inch 6 ✓ Screw stays: Material Steel ✓ Tensile strength 26/30 ✓ Diameter { At turned off part, or Over threads 1 7/8" } No. of threads per inch 9 ✓



Are the stays drilled at the outer ends No ✓ Margin stays: Diameter { At turned off part, or Over threads 2" ✓

No. of threads per inch 9 ✓

Tubes: Material Steel ✓ External diameter { Plain 3" ✓ Stay 3" ✓ Thickness { 8 W.G. ✓ 5/16" 3/8" No. of threads per inch 9 ✓

Pitch of tubes 4 1/4" x 4 1/8" ✓ Manhole compensation: Size of opening 16" x 12" ✓ 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 1/4" ✓ Steam Dome: Material \_\_\_\_\_

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

Diameter of rivet holes \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Percentage of strength of joint { Plate \_\_\_\_\_ Rivets \_\_\_\_\_

Internal diameter \_\_\_\_\_ Thickness of crown \_\_\_\_\_ No. and diameter of stays \_\_\_\_\_ Inner radius of crown \_\_\_\_\_

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 Smoke tube Manufacturers of { Tubes Stewart & Lytle Steel forgings Apple by Birmingham S.C. Steel castings \_\_\_\_\_

Number of elements 177 ✓ Material of tubes S.D.S. ✓ Internal diameter and thickness of tubes 15 1/4" 2 1/2" ✓

Material of headers Forged steel ✓ Tensile strength 26/30 ✓ 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 ✓

Pressure to which the safety valves are adjusted 230 lb. ✓ Hydraulic test pressure tubes 1500 lb. ✓ forgings and castings 660 lb. ✓ and after assembly in place 500 lb. ✓ 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 NORTH EASTERN MARINE ENGINEERING CO. (1988) LTD.  
The foregoing is a correct description,  
W. J. Gray RESIDENT MANUFACTURER

Dates of Survey { During progress of work in shops - - } Please see Rpt. A. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) \_\_\_\_\_

{ During erection on board vessel - - - } Total No. of visits \_\_\_\_\_

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.)

These boilers have been constructed under special survey in accordance with the approved plans, Secretary's letters and the requirements of the Rules. Workmanship & material are good. In recommendation please see Rpt. A.

Survey Fee ... .. £ : : When applied for, 19

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

L. R. Home

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 23 MAR 1945

Assigned See F.E. machy. opt.

