

## REPORT ON BOILERS.

No. 34401

12 FEB 1946

Date of writing Report \_\_\_\_\_ When handed in at Local Office **11 FEB 1946** Port of **Sunderland.**  
 No. in Survey held at **Sunderland** Date, First Survey \_\_\_\_\_ Last Survey **8 Feb 1946**  
 Brg. Book. \_\_\_\_\_  
 on the **"EMPIRE MOMBASA"** (Number of Visits \_\_\_\_\_) Gross **7319**  
 Tons Net **5179**  
 Built at **Sunderland** By whom built **Shipbuilding Corp. (Leas Brand)** Yard No. **4** When built **1945**  
 Engines made at **Chesterfield** By whom made **Marshall & Co. Ld.** Engine No. **A 154** When made \_\_\_\_\_  
 Boilers made at **Sunderland** By whom made **G. Clark (1938) Ld.** Boiler No. **1362** When made **1945**  
 Nominal Horse Power \_\_\_\_\_ Owners **Ministry of War Transport.** Port belonging to **Sunderland.**

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

Manufacturers of Steel **Colvilles Ld.** (Letter for Record **S.**)  
 Total Heating Surface of Boilers **4248 sq ft + 2790 for Cht. = 10,038 total** Is forced draught fitted **Yes.** Coal or Oil fired **Coal**  
 No. and Description of Boilers **Three single ended multitubular return tube marine** Working Pressure **220 lbs/sq. in.**  
 Tested by hydraulic pressure to **380 lbs/sq. in.** Date of test **9/2/45** No. of Certificate **4582** 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 lockburst Imp' high lift.**  
 Area of each set of valves per boiler {per Rule **6.40** as fitted **4.950** Pressure to which they are adjusted **220** 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 **3'-9"** 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'-0 1/16"** Length **11'-6" mean** Shell plates: Material **Steel** Tensile strength **29/33**  
 Thickness **1 15/32"** Are the shell plates welded or flanged **no.** Description of riveting: circ. seams {end **4 7/8"** inter. **10 3/8"**  
 long. seams **T.R.D.B.S.** Diameter of rivet holes in {circ. seams **1 1/2"** long. seams  
 Percentage of strength of circ. end seams {plate **63.6** rivets **46.2** Percentage of strength of circ. intermediate seam {plate **85.5** rivets **86.2**  
 Percentage of strength of longitudinal joint {plate **88.3** rivets **88.3**  
 Thickness of butt straps {outer **1 1/8"** inner **1 1/4"** No. and Description of Furnaces in each Boiler **Three Corrugated (Leighton)**  
 Material **Steel** Tensile strength **26/30** Smallest outside diameter **3'-9 3/4"**  
 Length of plain part {top **1 1/16"** bottom **1 1/16"** Thickness of plates {crown **1 1/16"** bottom **1 1/16"** Description of longitudinal joint **Welded.**  
 Dimensions of stiffening rings on furnace or p.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 **Leath. nuts.**  
 Tube plates: Material {front **Steel** back **Steel** Tensile strength **26/30** Thickness **15/16"** **25 1/32"**  
 Mean pitch of stay tubes in nests **9 3/16"** 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" (2)** Length as per Rule **2'-9 1/4"** 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 **1 1/16"** Back **1 1/16"** Top **1 1/16"** Bottom **1 1/8"**  
 Pitch of stays to ditto: Sides **9 1/4" x 8"** Back **9 1/4" x 8"** Top **9 1/4" x 8"** Are stays fitted with nuts or riveted over **nuts.**  
 Front plate at bottom: Material **Steel** Tensile strength **26/30**  
 Thickness **15/16"** Lower back plate: Material **Steel** Tensile strength **26/30** Thickness **2 1/32"**  
 Pitch of stays at wide water space **14" x 8"** Are stays fitted with nuts or riveted over **nuts.**  
 Main stays: Material **Steel** Tensile strength **28/32**  
 Diameter {At body of stay, **3 1/4"** No. of threads per inch **6**  
 {Over threads  
 Screw stays: Material **Steel** Tensile strength **26/30**  
 Diameter {At turned off part, **1 3/4"** No. of threads per inch **9**  
 {Over threads



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Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, or 1 7/8" + 2" Over threads

No. of threads per inch 9

Tubes: Material S.D. Steel External diameter { Plain 3" Stay 3" Thickness { 8/16 3/8 No. of threads per inch 9

Pitch of tubes 4 1/4" x 4 1/8" Manhole compensation: Size of opening in shell plate (In End 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 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 N.E.M. (head end) Smoke tube Manufacturers of { Tubes Stewart & Lloyd. Steel forgings applied to Radcliffham Steel Co. Ld. Steel castings -

Number of elements 144 Material of tubes S.D. Steel Internal diameter and thickness of tubes 1 5/8" x 2 1/2"

Material of headers Infed Steel Tensile strength 26/30 Thickness 1 1/8" Can the superheater be shut off and the boiler be worked separately Yes

Area of each safety valve 3 1/4" Is a safety valve fitted to every part of the superheater which can be shut off from the boiler Yes

Pressure to which the safety valves are adjusted 220 lbs. Are the safety valves fitted with easing gear Yes

tubes 1500 lbs. forgings and castings 600 lbs. and after assembly in place 440 lbs. Hydraulic test pressure: valves fitted to free the superheater from water where necessary Yes Are drain cocks or

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes

The foregoing is a correct description, George Clark (1988) Ltd. Manufacturer.

Dates of Survey { During progress of work in shops - - - Please see Rpt 4 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

while building { During erection on board vessel - - - Total No. of visits -

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. Empire Home Rpt. 34184

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed under Special Survey in accordance with the approved plan, specification & the rules of the Society. The materials and workmanship are good. On completion they were tested by hydraulic pressure of 380 lbs. & found tight & sound at that pressure. They have been securely fixed on board the vessel & safety valves adjusted to working pressure as above.

In recommendation please see Machinery Rpt.

Survey Fee ... See Machinery Rpt. When applied for, 19

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

W. H. Fraser  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 1 MAR 1946

Assigned See F.E. Machinery Rpt.