

# REPORT ON BOILERS.

Received at London Office

12 MAY 1945

Date of writing Report 14/5/1945 When handed in at Local Office 16/5/1945 Port of WEST HARTLEPOOL

No. in Survey held at WEST HARTLEPOOL Date, First Survey 22/8/44 Last Survey 5/5/1945

(Number of Visits 56) Gross 3538

Tons Net 2259

on the STEEL SCREW STEAMER "EMPIRE CAICOS"

Master Built at West Hartlepool By whom built Wm. Brydges & Co. Yard No. 1179 When built 1945

Engines made at West Hartlepool By whom made Central Marine Engine Works Engine No. 1179 When made 1945

Boilers made at West Hartlepool By whom made Central Marine Engine Works Boiler No. 1179 When made 1945

Nominal Horse Power 299 Owners Ministry of War Transport Port belonging to West Hartlepool

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

Manufacturers of Steel Messrs. Cobbles, 2<sup>nd</sup> Glasgow (Letter for Record 5)

Total Heating Surface of Boilers 4546 sq ft Is forced draught fitted yes Coal or Oil fired Both

No. and Description of Boilers 2 single ended, multitubular Working Pressure 200 lbs.

Tested by hydraulic pressure to 350 lbs. Date of test 3-3-45 No. of Certificate 4.044 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 46.2 sq ft No. and Description of safety valves to each boiler 2 Cockburn's High Lift

Area of each set of valves per boiler per Rule 6.05 sq ft Pressure to which they are adjusted 200 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 18" Is oil fuel carried in the double bottom under boilers yes

Smallest distance between shell of boiler and tank top plating 3'-2 1/4" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 14'-0" Length 11'-9" Shell plates: Material Steel Tensile strength 29-33 tons

Thickness 1 5/16" Are the shell plates welded or flanged No. Description of riveting: circ. seams DR LAP.

long. seams TR Double Butt Straps Diameter of rivet holes in circ. seams 15/16" Pitch of rivets 4"

Percentage of strength of circ. end seams plate 67.2 rivets 43.5 Percentage of strength of circ. intermediate seam plate - rivets -

Percentage of strength of longitudinal joint plate 85.42 rivets 90.6 combined 88.95 Working pressure of shell by Rules -

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

Material Steel Tensile strength 26-30 tons Smallest outside diameter 3'-5 7/16"

Length of plain part top - bottom - Thickness of plates crown 1 9/32" bottom 1 9/32" Description of longitudinal joint Welded

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

End plates in steam space: Material Steel Tensile strength 26-30 tons Thickness 1 9/32" Pitch of stays 19 3/4" x 19 3/8"

How are stays secured Double nuts Working pressure by Rules -

Tube plates: Material front Steel back Steel Tensile strength 26-30 tons Thickness 29/32" 13/16"

Mean pitch of stay tubes in nests 12 3/8" x 8 1/2" Pitch across wide water spaces 14" Working pressure front - back -

Girders to combustion chamber tops: Material Steel Tensile strength 26-30 tons Depth and thickness of girder

at centre 8" x 1 3/4", 2-7/8 plates Length as per Rule 2'-7 1/2" Distance apart 9" No. and pitch of stays

in each 2 @ 10" Working pressure by Rules - Combustion chamber plates: Material Steel

Tensile strength 26-30 tons Thickness: Sides 23/32" Back 1/16" Top 23/32" Bottom 23/32"

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

Working pressure by Rules - Front plate at bottom: Material Steel Tensile strength 26-30 tons

Thickness 29/32" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 7/8"

Pitch of stays at wide water space 14 3/8" x 9 3/8" Are stays fitted with nuts or riveted over nuts

Working Pressure - Main stays: Material Steel Tensile strength 28-32 tons

Diameter At body of stay, 3 1/4" No. of threads per inch 6 Area supported by each stay -

Working pressure by Rules - Screw stays: Material Steel Tensile strength 26-30 tons

Diameter At turned off part, 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  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. 2''$

No. of threads per inch 9. Area supported by each stay 3'' Working pressure by Rules

Tubes: Material HRWS External diameter  $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. 3''$  Thickness  $\left\{ \begin{array}{l} 8 \text{ W.G.} \\ 3/16, 1/4, 5/16 \end{array} \right. \text{No. of threads per inch } 9.$

Pitch of tubes 4 1/4 x 4 1/8 Working pressure by Rules

Manhole compensation: Size of opening None Section of compensating ring None No. of rivets and diameter of rivet holes

Outer row rivet pitch at ends None Depth of flange if manhole flanged None Steam Dome: Material

Tensile strength None Thickness of shell None Description of longitudinal joint

Diameter of rivet holes None Pitch of rivets None Percentage of strength of joint  $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$

Internal diameter None Working pressure by Rules None Thickness of crown None No. and diameter of stays None Inner radius of crown None Working pressure by Rules

How connected to shell None Size of doubling plate under dome None Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell None

Type of Superheater Superheater 6:2" Manufacturers of  $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right.$

Number of elements 43 per boiler Material of tubes SP. steel Internal diameter and thickness of tubes 17 1/4 x 2 1/2 W.G.

Material of headers None Tensile strength None Thickness None Can the superheater be shut off at the boiler be worked separately No. 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 1.767" Are the safety valves fitted with easing gear Yes. Working pressure as per Rules 210 lbs. Hydraulic test pressure 600 lbs.

tubes 1000 lbs. forgings and castings 600 lbs. and after assembly in place 600 lbs. Are drain cocks 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 foregoing is a correct description,  
FOR THE CENTRAL MARINE ENGINE WORKS  
(The City & Co. Ltd.) Manufacture

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

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) Yes.

Total No. of visits 1

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. SS. EM. BARBADOS RPTN° 18638.

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) These boilers have been built under special survey and in accordance with the approved plans and specification for a working pressure of 200 lbs per square inch. The materials and workmanship have been found good. Upon completion the Boilers were tested in the presence of the undersigned by a hydraulic pressure of 350 lbs per square inch, showed no signs of weakness and were found tight and sound in every respect at that pressure.

Survey Fee ... £ : : } When applied for, 10

Travelling Expenses (if any) £ : : } When received, 10

Arthur W. Oxford  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 25 MAY 1945

Assigned Su F.E. machy, spt.

