

## REPORT ON BOILERS.

No. 18343

Received at London Office

15 OCT 1942

Date of writing Report 14/10/1942 When handed in at Local Office 14/10/1942 Port of WEST HARTLEPOOL

No. in Survey held at WEST HARTLEPOOL Date, First Survey 14<sup>th</sup> May, 1942 Last Survey 3<sup>rd</sup> October, 1942

on the STEEL SCREW STEAMER EMPIRE CENTAUR (Number of Visits 71) Tons { Gross 7041.34  
Net 5024.19

Built at WEST HARTLEPOOL By whom built WM. GRAY & CO. LTD Yard No. 1134 When built 1942

Engines made at WEST HARTLEPOOL By whom made CENTRAL MARINE ENGINE WORKS Engine No. 1134 When made 1942

Boilers made at WEST HARTLEPOOL By whom made CENTRAL MARINE ENGINE WORKS Boiler No. 1134 When made 1942

Nominal Horse Power 510 Owners MINISTRY OF WAR TRANSPORT Port belonging to WEST HARTLEPOOL

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

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

Total Heating Surface of Boilers 7248 sq ft Is forced draught fitted Yes Coal or Oil fired Coal

No. and Description of Boilers 3 single ended multitubular Working Pressure 220 lbs.

Tested by hydraulic pressure to 380 lbs. Date of test 30.7.42 No. of Certificate 3975 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 54.84 sq ft No. and Description of safety valves to each boiler 2 Bockburn's High Lift

Area of each set of valves per boiler { per Rule 6.425 sq ft  
as fitted 7.952 sq ft Pressure to which they are adjusted 220 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 21" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 23 3/4" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 15'-0 1/2" Length 11'-6" Shell plates: Material Steel Tensile strength 29-33 tons

Thickness 1 15/32" Are the shell plates welded or flanged No Description of riveting: circ. seams { end D.R. LAP  
inter. -

long. seams T.R. Double butt straps Diameter of rivet holes in { circ. seams 1 1/2"  
long. seams 1 1/2" Pitch of rivets { 4" 07"  
10 3/8"

Percentage of strength of circ. end seams { plate 63.1  
rivets 46.8 Percentage of strength of circ. intermediate seam { plate -  
rivets -

Percentage of strength of longitudinal joint { plate 85.5  
rivets 86.2 combined 88.35

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

Material Steel Tensile strength 26-30 tons Smallest outside diameter 45 1/4"

Length of plain part { top -  
bottom - Thickness of plates { crown 1 1/16"  
bottom 1 1/16" Description of longitudinal joint Welded

Dimensions of stiffening rings on furnace or c.e. bottom -

End plates in steam space: Material Steel Tensile strength 26-30 tons Thickness 1 13/32" Pitch of stays 21 x 20'

How are stays secured Double nuts

Tube plates: Material { front Steel  
back Steel Tensile strength { 26-30 tons  
26-30 tons Thickness { 15 1/16"  
25 1/32"

Mean pitch of stay tubes in nests 10 5/8" x 8 1/4" Pitch across wide water spaces 14"

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 tons Depth and thickness of girder 10 1/2 x 1 3/8 x 2 1/16 plates

at centre 10 1/2 x 1 3/8 x 2 1/16 plates Length as per Rule 2'-9 17/32" Distance apart 9 1/4" No. and pitch of stays 3 @ 8"

Combustion chamber plates: Material Steel

Tensile strength 26-30 tons Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 1 3/16"

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 No

Front plate at bottom: Material Steel Tensile strength 26-30 tons

Thickness 15 1/16" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 27 1/32"

Pitch of stays at wide water space 14" x 8" Are stays fitted with nuts or riveted over No

Main stays: Material Steel Tensile strength 28-32 tons

Diameter { At body of stay, -  
or 3 1/2" No. of threads per inch 6

Screw stays: Material Steel Tensile strength 26-30 tons

Diameter { At turned off part, -  
or 1 3/4" No. of threads per inch 9

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Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, 1 1/2" or Over threads

No. of threads per inch 9.

Tubes: Material HRWS External diameter { Plain 3" Stay 3" Thickness { 8 SWG 3/8" - 5/16" No. of threads per inch 9.

Pitch of tubes 4 1/4" x 4 1/8" Manhole compensation: Size of opening in shell plate None. Section of compensating ring No. of rivets and diameter of rivet holes

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 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 Superheater B°. Manufacturers of { Tubes Steel forgings Steel castings

Number of elements 47. 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 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 sq. ft. Are the safety valves fitted with easing gear Yes.

Pressure to which the safety valves are adjusted 230 lbs. Hydraulic test pressure tubes forgings and castings and after assembly in place 660 lbs. 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 foregoing is a correct description,  
FOR THE CENTRAL MARINE ENGINE WORKS

(W. Gray & Co. Ltd.)

Manufacturers

Dates of Survey { During progress of work in shops - - } while building { During erection on board vessel - - }

Are the approved plans of boiler and superheater for GENERAL MARINE (If not state date of approval.)

Total No. of visits

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. SS. EMPIRE CLARION RPT No 18,330.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed under special survey and in accordance with the approved plans and specification for a working pressure of 220 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 380 lbs per square inch. Showed no signs of weakness and were found sound and tight in every respect at that pressure.

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

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

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

Committee's Minute TUE 20 OCT 1942

Assigned See J.E. Mackay rpt



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