

## REPORT ON BOILERS.

No. 1810a

Received at London Office

JAN 13 1941

Date of writing Report 31/12/40 When handed in at Local Office 31/12/40 Port of WEST HARTLEPOOL.

No. in Survey held at WEST HARTLEPOOL.  
Reg. Book.Date, First Survey 16<sup>th</sup> AprilLast Survey 27<sup>th</sup> December 1940

(Number of Visits 77)

Gross 2824.07

Tons Net 1574.73

on the S.S. EMPIRE STRAIT

Built at West Hartlepool By whom built Wm. Gray &amp; Co. Ltd.

Yard No. 1112 When built 1940

Engines made at West Hartlepool

By whom made Central Marine Engine Works.

Engine No. 1112 When made 1940.

Boilers made at West Hartlepool

By whom made Central Marine Engine Works.

Boiler No. 1112 When made 1940.

Nominal Horse Power 255

Owners Ministry of Shipping

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 3,530 sq

Is forced draught fitted Yes.

Coal or Oil fired Coal

No. and Description of Boilers 2 Single ended multitubular

Working Pressure 200 lbs.

Tested by hydraulic pressure to 350 lbs. Date of test 9-10-40. No. of Certificate 3921 Can each boiler be worked separately Yes.

Area of Firegrate in each Boiler 41.8 sq. No. and Description of safety valves to each boiler Two Borden's High Lift.

Area of each set of valves per boiler (per Rule 5.135 sq. as fitted 6.28 sq. 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 24"

Is oil fuel carried in the double bottom under boilers No.

Smallest distance between shell of boiler and tank top plating 2'-7"

Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 13'-0" Length 11'-6"

Shell plates: Material Steel Tensile strength 29/33 tons

Thickness 1 5/32" Are the shell plates welded or flanged No. Description of riveting: circ. seams (end D.R. LAP. inter.)

long. seams TR Double butt straps Diameter of rivet holes in (circ. seams 1 1/4" long. seams 1 1/4" Pitch of rivets (3 3/8" 8 9/16")

Percentage of strength of circ. end seams (plate 67.75 rivets 43.44)

Percentage of strength of circ. intermediate seam (plate rivets)

Percentage of strength of longitudinal joint (plate 85.4 rivets 92.1 combined 89.22)

Thickness of butt straps (outer 3/8" inner 1" No. and Description of Furnaces in each Boiler 3 Deighton type, Goulley necks.

Material Steel Tensile strength 26/30 tons Smallest outside diameter 37 1/16"

Length of plain part (top bottom) Thickness of plates (crown 17/32" bottom 17/32" Description of longitudinal joint Welded.

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

End plates in steam space: Material Steel Tensile strength 26/30 tons Thickness 1 1/8" Pitch of stays 18" x 16"

How are stays secured Double nuts.

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

Mean pitch of stay tubes in nests 10 7/16" Pitch across wide water spaces 14" x 8 1/4"

Girders to combustion chamber tops: Material Steel Tensile strength 28/32 tons Depth and thickness of girder

at centre 7 3/4" x 1 3/4" 2 3/8" plates Length as per Rule 33.47" Distance apart 8" No. and pitch of stays

in each 2 @ 10 3/4" Combustion chamber plates: Material Steel

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

Pitch of stays to ditto: Sides 11" x 7 3/4" Back 10" x 9" Top 10 3/4" x 8" Are stays fitted with nuts or riveted over No.

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 29/32"

Pitch of stays at wide water space 15 1/4" x 9" Are stays fitted with nuts or riveted over No.

Main stays: Material Steel Tensile strength 28/32 tons

Diameter (At body of stay, or Over threads) 2 7/8" No. of threads per inch 6

Screw stays: Material Steel Tensile strength 26/30 tons

Diameter (At turned off part, or Over threads) 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, — or Over threads 2" ✓  
No. of threads per inch 9 ✓  
Tubes: Material Steel External diameter { Plain 3" ✓ Stay 3" ✓ Thickness { 8 15/16" ✓ No. of threads per inch 9 ✓  
Pitch of tubes 4 1/4" x 4 1/8" ✓ Manhole compensation: Size of opening in shell plate 20" x 16" ✓ Section of compensating ring 3' 1" x 2' 9" x 1 5/32" ✓ No. of rivets and diameter of rivet holes 32 @ 1 3/8" ✓  
Outer row rivet pitch at ends 9 1/2" ✓ Depth of flange if manhole flanged — ✓ Steam Dome: Material None ✓  
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 None ✓ Manufacturers of { Tubes \_\_\_\_\_ Steel forgings \_\_\_\_\_ Steel castings \_\_\_\_\_  
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,  
FOR THE CENTRAL MARINE ENGINE WORKS,  
(All. Ord. & En. 311)

Manufacturer.

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

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

GENERAL MANAGER.

Total No. of visits

Is this Boiler a duplicate of a previous case yes ✓ If so, state Vessel's name and Report No. S.S. EMPIRE LOUGH PATM. 18099.

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 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 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

Assigned

See Apl. J.C. 18102



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Foundation