

## REPORT ON BOILERS.

No. 18666

Received at London Office

19 JUL 1945

Date of writing Report

17/7/

1945

When handed in at Local Office

18/7/

1945

Port of WEST HARTLEPOOL

No. in Survey held at

WEST HARTLEPOOL

Date, First Survey 18th October 1944

Last Survey

7th July 1945

on the STEEL SCREW STEAMER "EMPIRE ALDgate"

(Number of Visits

49

Tons

Gross 3484.87

Net 2186.88

Master

Built at WEST HARTLEPOOL By whom built WM. GRAY &amp; CO. LTD.

Yard No. 1180

When built 1945.

Engines made at

WEST HARTLEPOOL

By whom made CENTRAL MARINE ENGINE WORKS

Engine No. 1180

When made 1945.

Boilers made at

WEST HARTLEPOOL

By whom made CENTRAL MARINE ENGINE WORKS.

Boiler No. 1180

When made 1945.

Nominal Horse Power

281

Owners MINISTRY OF WAR TRANSPORT

Port belonging to WEST HARTLEPOOL.

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

Manufacturers of Steel

Messrs. Colvilles, 5th Glasgow.

(Letter for Record

S.

Total Heating Surface of Boilers

2147 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

13.4.45

No. of Certificate

4.047

Can each boiler be worked separately

Yes.

Area of Firegrate in each Boiler

46.2 sq

No. and Description of safety valves to each boiler

2 Corliss High Lift.

Area of each set of valves per boiler

per Rule

6.05 sq

as fitted

7.95 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

3'-9"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

3'-4 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 1/2"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end D.R. LAP

Long. seams

R. Double butt strap

Diameter of rivet holes in

circ. seams

1 5/16"

long. seams

1 5/16"

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

Working pressure of shell by Rules

-

Thickness of butt straps

outer

1 5/16"

inner

1 1/16"

combined

88.95

No. and Description of Furnaces in each Boiler

3 Corrugated Dighton section

Material

Steel

Tensile strength

26-30 tons

Smallest outside diameter

3'-5 3/8"

Length of plain part

top

-

bottom

Thickness of plates

crown

1 1/2"

bottom

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 1/2"

Pitch of stays

19 1/4" x 19 3/8"

How are stays secured

Double nuts.

Working pressure by Rules

-

End plates: Material

front

Steel

back

Steel

Tensile strength

26-30 tons

Thickness

2 3/8"

Pitch of stays

13 1/16"

Can pitch of stay tubes in nests

12 3/8" x 8 1/2"

Pitch across wide water spaces

14"

Working pressure

front

-

back

Orders to combustion chamber tops: Material

Steel

Tensile strength

28-32 tons

Depth and thickness of girder

centre

7 1/2" x 1 3/4"

plates

Length as per Rule

2'-7 1/2"

Distance apart

9"

No. and pitch of stays

each

2 @ 10'

Working pressure by Rules

-

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons

Thickness: Sides

2 3/8"

Back

1 1/2"

Top

2 3/8"

Bottom

2 3/8"

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

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,

or

Over threads

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,

or

Over threads

1 3/4"

No. of threads per inch

9

Area supported by each stay

-

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,

or

Over threads

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,

or

Over threads

1 3/4"

No. of threads per inch

9

Area supported by each stay

-

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,

or

Over threads

3 1/4"

No. of threads per inch

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Area supported by each stay

-

Working pressure by Rules

-

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

Area supported by each stay

-

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,

or

Over threads

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,

or

Over threads

1 3/4"

No. of threads



Working pressure by Rules - 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 Area supported by each stay - Working pressure by Rules -  
Tubes: Material HRWS External diameter { Plain 3" Stay 3" } Thickness { 3/16 1/4 5/16 } 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  
shell plate ☒ No. 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 Working pressure by Rules Thickness of crown No. and diameter  
stays Inner radius of crown Working pressure by Rules  
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 Superheaters 2nd Manufacturers of { Tubes Steel forgings Steel castings }  
Number of elements 43 per 8ft Material of tubes S.P. Steel Internal diameter and thickness of tubes 17 1/4 x 2 1/2  
Material of headers Tensile strength Thickness Can the superheater be shut off from the boiler  
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. in. Are the safety valves fitted with easing gear ☒ Yes Working pressure as per Rules  
Pressure to which the safety valves are adjusted 210 lbs. sq. in. Hydraulic test pressure  
tubes 1000 lbs. sq. in. forgings and castings 600 lbs. sq. in. and after assembly in place 600 lbs. sq. in. 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

Dates { During progress of work in shops - - - while building { During erection on board vessel - - - }  
Are the approved plans of boiler and superheater forwarded to the Registrar with (If not state date of approval.) 16-9-41  
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 CAICOS RPHO 1865

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The boilers of this vessel have been constructed under special survey and in accordance with the approved plans and specification for a working pressure of 200 lbs. sq. in. 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. sq. in. showed no signs of weakness and were found tight and sound in every respect at that pressure.

Survey Fee ... £ : : When applied for, 19  
Travelling Expenses (if any) £ : : When received, 19

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

Committee's Minute FRI. 24 AUG 1945

Assigned Su F.E. machy, rpt.



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Foundation