

REPORT ON BOILERS.

No. 18461

Received at London Office

16 SEP 1943

Date of writing Report

19

When handed in at Local Office

10

Port of WEST HARTLEPOOL

No. in Survey held at WEST HARTLEPOOL

Date, First Survey March 16thLast Survey September 1st 1943.

Reg. Book.

(Number of Visits 56)

Tons Gross 4044.81

Net 4844.82.

on the STEEL SCREW STEAMER "EMPIRE RIVAL"

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

Yard No. 1151 When built 1943.

Engines made at WEST HARTLEPOOL By whom made CENTRAL MARINE ENGINE WORKS. Engine No. 1151 When made 1943.

Boilers made at WEST HARTLEPOOL By whom made CENTRAL MARINE ENGINE WORKS Boiler No. 1151 When made 1943.

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 & Co. Glasgow.

(Letter for Record 5.

Total Heating Surface of Boilers

7,248 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 21.7.43.

No. of Certificate 4,004

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 Rockburys 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 1/2"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end

D.R. LAP.

long. seams TR 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 88.3.

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 bottom

1 1/8" 1 1/8"

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 1/2"

Pitch of stays 21 x 20"

How are stays secured

Double nuts

Tube plates: Material

front back

Steel 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

at centre 10 1/2 x 1 3/8" 2-1/16" plates as per Rule

2-9 1/32"

Distance apart

9 1/4"

No. and pitch of stays

in each 3 @ 8"

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons

Thickness: Sides

1 1/8"

Back 1 1/8"

Top 1 1/8"

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

Nuts

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

Nuts

Main stays: Material

Steel

Tensile strength

28-32 tons

Diameter

At body of stay, or Over threads

3 1/2"

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.

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

No. of threads per inch 9.

Tubes: Material H.P.W.S. 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.S. Manufacturers of { Tubes Steel forgings Steel castings

Number of elements 47 Material of tubes S.D. STEEL Internal diameter and thickness of tubes 22 1/4" x 2 1/2"

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 Are the safety valves fitted with easing gear Yes.

Pressure to which the safety valves are adjusted 230 lbs Hydraulic test pressure: tubes 660 lbs forgings and castings 660 lbs 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,
Arthur W. Oxford 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.)

Total No. of visits

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. SS. EMPEAK. RATH° 18437.

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 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 tight and sound 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 TUES. 28 SEP 1943

Assigned see minute on J.R.P.h.