

REPORT ON BOILERS.

No. 33625

Received at London Office

25 FEB 1943

Date of writing Report

19

When handed in at Local Office

24 FEB 1943

Port of

Sunderland.

No. in Survey held at
Reg. Book.

Sunderland.
South Shields

Date, First Survey

Dec 4 1942

Last Survey

Feb 17 1943

(Number of Visits 13)

Gross 7028.41
Net 4875.76

113 on the

S.S. EMPIRE PERDITA

Built at South Shields

By whom built

John Readhead & Sons L^{td}

Yard No. 533

When built 1943

Engines made at

South Shields

By whom made

J. Readhead & Sons L^{td}

Engine No. 533

When made 1943

Boilers made at

Sunderland

By whom made

G. Clark (1938) L^{td}

Boiler No. 1306

When made 1943.

Nominal Horse Power

Owners

Ministry of War Transport

Port belonging to

S. Shields

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Colville L^{td}

Total Heating Surface of Boilers

4248 sq ft

Is forced draught fitted

Yes.

(Letter for Record

S.

Coal or Oil fired

Coal.

No. and Description of Boilers

Three Single Ended multitubular return tube marine

Working Pressure

220

Tested by hydraulic pressure to

380 lb/sq in

Date of test

4/2/43

No. of Certificate

4477, 4478

Can each boiler be worked separately

Area of Firegrate in each Boiler

55 sq ft

No. and Description of safety valves to each boiler

Two bellows Imp. High Lift.

Area of each set of valves per boiler

per Rule

6.46 sq in

as fitted

4.94 sq in

Pressure to which they are adjusted

220 lb/sq in

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

1-6"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

2-0"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

15'-0 1/16"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength

29/33.

Thickness

1 15/32"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end

D.R. Lap.

long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams

1 1/2"

long. seams

1 1/2"

Pitch of rivets

4.04"

10 3/8"

Percentage of strength of circ. end seams

plate

63.1

rivets

46.4

Percentage of strength of circ. intermediate seam

plate

✓

Percentage of strength of longitudinal joint

plate

85.5

rivets

86

Thickness of butt straps

outer

1 1/8"

inner

1 1/4"

No. and Description of Furnaces in each Boiler

Three corrugated (Leighton).

Material

Steel

Tensile strength

26/30

Smallest outside diameter

45 1/2"

45 1/8"

Length of plain part

top

✓

bottom

Thickness of plates

crown

1 1/16"

bottom

Description of longitudinal joint

held.

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

✓

End plates in steam space

Material

Steel

Tensile strength

26/30

Thickness

1 13/32"

Pitch of stays

20" x 21"

How are stays secured

Double nuts.

Tube plates

Material

front

Steel

back

Tensile strength

26/30

Thickness

15/16"

25/32"

Mean pitch of stay tubes in nests

10 1/2"

7.64

Pitch across wide water spaces

14" x 8 1/4"

Girders to combustion chamber tops

Material

Steel

Tensile strength

28/32

Depth and thickness of girder

at centre

10 1/2" x 1 1/16" (2)

Length as per Rule

2'-9 1/4" 32"

Distance apart

9 1/4"

No. and pitch of stays

in each

3 @ 8"

Combustion chamber plates

Material

Steel

Tensile strength

26/30

Thickness: Sides

1 1/16"

Back

1 1/16"

Top

1 1/16"

Bottom

13/16"

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

(Shell End Cambride)

Front plate at bottom

Material

Steel

Tensile strength

26/30

Thickness

15/16"

Lower back plate

Material

Steel

Tensile strength

26/30

Thickness

24/32"

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

Diameter

At body of stay,

or

Over threads

3 1/4"

3 1/2"

No. of threads per inch

6

Screw stays

Material

Steel

Tensile strength

26/30

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 1 7/8" 2" }
 No. of threads per inch 9
 Tubes: Material P.D. Steel External diameter { Plain 3" Stay 3" } Thickness { 8 LB. 3/8" 5/16" } No. of threads per inch 9
 Pitch of tubes 4 1/4" x 4 1/8"
 End plate 16" x 12" Section of compensating ring ☒ No. of rivets and diameter of rivet holes ☒
 Outer row rivet pitch at ends ☒ Depth of flange if manhole flanged 4 1/4" 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
 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 H.E. Marine (Smoke Tube) Manufacturers of { Tubes Applby Lodingham Steel Cos. Steel forgings Steel castings }
 Number of elements 144 Material of tubes P.D. Steel Internal diameter and thickness of tubes 15 3/4" x 2 1/2"
 Material of headers Infel Steel Tensile strength 26/30 Thickness 1 1/8" 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 3.14 sq. in. Are the safety valves fitted with easing gear ☒
 Pressure to which the safety valves are adjusted 225 lbs. Hydraulic test pressure: tubes 1500 lbs. forgings and castings 660 lbs. and after assembly in place 440 lbs. 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 ☒

The foregoing is a correct description,

GEORGE CLARK (1938) LTD.

Manufacturer.

Dates of Survey { During progress of work in shops - - 27. Dec. 4. 14. 15. 22 23. Jan. 19. 20. 27 } Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval) ☒
 while building { During erection on board vessel - - 2. 4. 24. 29. 11. 15. 17 } Total No. of visits 13

Is this Boiler a duplicate of a previous case If so, state Vessel's name and Report No.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed under Special Survey in accordance with approved plan, Specification & the rules of the Society. The materials & workmanship are good.
On Completion the boilers were tested by hydraulic pressure of 380 lbs. & found tight & sound at that pressure.
They have been fitted with N.E.M. Superheaters which have been tested in place as above.
The boilers have been despatched to Messrs J. Readhead & Sons for installation on board the vessel.

The above boilers have been efficiently installed & fixed in the S.S. Empire Perdita, examined under working conditions their safety valves adjusted to the above pressure.

Survey Fee 5 £ 40 - 4 When applied for, 24 FEB 1943
 + Specification 10. 1 When received, 19

W. L. L. L. L. J. W. Matthews
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 11 JUN 1943

Assigned

See Nav. F.E. Rep 101287