

## REPORT ON BOILERS.

No. 33648

Date of writing Report

19

When handed in at Local Office

26 MAR 1943

Port of

Received at London Office

29 MAR 1943

Sunderland.

No. in Survey held at  
Reg. Book.

Sunderland

Date, First Survey

Last Survey 17 July 1943.

"EMPIRE BEN"

(Number of Visits)

Gross

Tons

Net

Built at

By whom built

Yard No.

When built

Engines made at

Sunderland

By whom made

G. Clark (1938) Ltd

Engine No.

1264

When made

1942.

Boilers made at

Sunderland

By whom made

G. Clark (1938) Ltd

Boiler No.

1264

When made

1942.

Nominal Horse Power

Owners

Port belonging to

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

Manufacturers of Steel

Steel Company of Scotland

(Letter for Record)

S.

Total Heating Surface of Boilers

2781 sq. ft.

Is forced draught fitted

Yes.

Coal or Oil fired

Coal

No. and Description of Boilers

One Single Ended Multitubular return tube marine

Working Pressure

200

Tested by hydraulic pressure to

350

Date of test

9/9/42

No. of Certificate

4444

Can each boiler be worked separately

Area of Firegrate in each Boiler

40 sq. ft.

No. and Description of safety valves to each boiler

Two Cockburn Imp. High Lift.

Area of each set of valves per boiler

per Rule 8.19 sq. in.

as fitted 9.8 sq. in.

Pressure to which they are adjusted

200 lb.

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

Largest internal dia. of boilers

16'-0"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength

29/33

Thickness

1 13/32"

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 1/4"

Pitch of rivets

4.643"

inter.

9 23/32"

Percentage of strength of circ. end seams

plate

64.9

rivets 42.65

Percentage of strength of circ. intermediate seam

plate

85.3

rivets 84.43

Percentage of strength of longitudinal joint

plate

85.3

rivets 84.43

combined 88.15

Thickness of butt straps

outer 1 1/16"

inner 1 3/16"

No. and Description of Furnaces in each Boiler

Three Corrugated (Leighton)

Material

Steel

Tensile strength

26/30

Smallest outside diameter

3'-11 1/32"

Length of plain part

top

bottom

Thickness of plates

crown

43/64"

bottom

Description of longitudinal joint

weld.

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

End plates in steam space: Material

Steel

Tensile strength

26/30

Thickness

1 1/32"

Pitch of stays

22 1/2" x 22"

How are stays secured

Double nuts

Tube plates: Material

front Steel

back

Tensile strength

26/30

Thickness

29/32"

24/32"

Mean pitch of stay tubes in nests

13 1/8" x 8 3/4"

Pitch across wide water spaces

14 1/4" x 8 3/4"

Girders to combustion chamber tops: Material

Steel

Tensile strength

28/32

Depth and thickness of girder

at centre

2 - 10 1/8" x 3/4"

Length as per Rule

34"

Distance apart

10"

No. and pitch of stays

in each

3 @ 9"

Combustion chamber plates: Material

Steel

Tensile strength

26/30

Thickness: Sides

13/16"

Back

11/16" Lingo

21/32" Centre

Top

13/16"

Bottom

13/16"

Pitch of stays to ditto: Sides

9 3/8" x 8 5/8"

Back

9" x 9"

Top

9" x 10"

Are stays fitted with nuts or riveted over

nuts.

Front plate at bottom: Material

Steel

Thickness

29/32"

Lower back plate: Material

Steel

Tensile strength

26/30

Thickness

3/32"

Pitch of stays at wide water space

14 1/4" x 9"

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 3/4" x 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. 1 7/8" x 2" or Over threads

No. of threads per inch 9.

Tubes: Material P.D. Steel External diameter { Plain 3 1/4" Stay 3 1/4" Thickness { 8 LB. 5/16" No. of threads per inch 9.

Pitch of tubes 4 3/8" x 4 3/8" Manhole compensation: Size of opening in shell plate 20" x 16" Section of compensating ring 9 3/8" x 1 3/32" No. of rivets and diameter of rivet holes 38 @ 1 1/2"

Outer row rivet pitch at ends 10 1/4" Depth of flange if manhole flanged 2 3/4" 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 \_\_\_\_\_ 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 \_\_\_\_\_ 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,  
A. J. Berry Manufacturer.

Dates of Survey { During progress of work in shops - - } Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

while building { During erection on board vessel - - } Total No. of visits

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.) This boiler has been constructed under Special Survey in accordance with the approved Plan, Specification & the requirements of the Society's rules.

The materials & workmanship are good. On completion it was tested by hydraulic pressure of 350 lbs/sq. & found tight & sound at that pressure.

For recommendation please see Rpt 4.

Survey Fee ... £ See Machinery Rpt. When applied for, 19

Travelling Expenses (if any) £ \_\_\_\_\_ When received, 19

W. H. Fraser.  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 2 APR 1943

Assigned

See Incl J.E. 51877



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