

26 APR 1944

Rpt. 5a.

## REPORT ON BOILERS.

Received at London Office

Date of writing Report 24<sup>th</sup> April 1944. When handed in at Local Office 25<sup>th</sup> April 1944. Port of WEST HARTLEPOOLNo. in Survey held at WEST HARTLEPOOL  
Reg. Book.Date, First Survey 23<sup>rd</sup> February. Last Survey 11<sup>th</sup> April 1944(Number of Visits 8)  
Tons { Gross  
Net

on the

EMPIRE SUSAN

Built at NEWCASTLE By whom built MESS<sup>rs</sup> CLELAND (SUCC<sup>rs</sup>) LTD.

Yard No. 71 When built

Engines made at SUNDERLAND

By whom made MESS<sup>rs</sup> G DICKINSON & CO LTD

Engine No. 936. When made

Boilers made at WEST HARTLEPOOL

By whom made CENTRAL MARINE ENGINE WORKS.

Boiler No. R370 When made 1944.

Nominal Horse Power

Owners

Port belonging to

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

Manufacturers of Steel MESS<sup>rs</sup> BOWLERS, 2<sup>nd</sup> Glasgow.

(Letter for Record S.

Total Heating Surface of Boilers

3,090 sq ft

Is forced draught fitted

yes.

Coal or Oil fired

oil

No. and Description of Boilers

One single ended, multitubular

Working Pressure 215 lbs/sq in

Tested by hydraulic pressure to 373 lbs/sq in

Date of test 18<sup>th</sup> Apr. 1944

No. of Certificate 4025.

Can each boiler be worked separately

Area of Firegrate in each Boiler

8.58 sq ft

No. and Description of safety valves to each boiler

One Pair Improved High Lift

Area of each set of valves per boiler

as fitted

9.82 sq ft

Pressure to which they are adjusted

215

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

36 1/4"

Is oil fuel carried in the double bottom under boilers

No DB

Smallest distance between shell of boiler and tank top plating

—

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

16'-1"

Length

11'-3"

Shell plates: Material

Steel

Tensile strength

31-35 tons

Thickness

1 3/4"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end

D.R. LAP.

Long. seams TR. Double butt strap

Diameter of rivet holes in

circ. seams

1 3/2"

long. seams

1 1/2"

Pitch of rivets

4.558"

Percentage of strength of circ. end seams

plate

66.4.

rivets

42.16

Percentage of strength of circ. intermediate seam

plate

—

rivets

Percentage of strength of longitudinal joint

plate

85.0

rivets

86.44

combined

87.28.

Thickness of butt straps

outer

1 3/2"

inner

1 3/2"

No. and Description of Furnaces in each Boiler 3 corrugated, Dighat section.

Material

Steel

Tensile strength

26-30 tons

Smallest outside diameter

21-1 1/2"

Length of plain part

top

—

bottom

—

Thickness of plates

crown

2 3/2"

bottom

—

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 3/8"

Pitch of stays

24 x 18 1/2"

How are stays secured

Double nuts.

Tube plates: Material

front

Steel

back

Steel

Tensile strength

26-30 tons

26-30 tons

Thickness

59/64"

27/32"

Mean pitch of stay tubes in nests

12 3/4 x 8 1/2"

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 1/8 x 1 3/8

2 1/2" plate

length as per Rule

2-7 1/4"

Distance apart

9 3/4"

No. and pitch of stays

in each

3 @ 7 3/8"

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons

Thickness: Sides

53/64"

Back

45/64"

Top

53/64"

Bottom

53/64"

Pitch of stays to ditto: Sides

9 3/8 x 8 1/2"

Back

9 1/4 x 8 1/2"

Top

9 3/4 x 7 3/8"

Are stays fitted with nuts or riveted over

nuts

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons

Thickness

59/64"

Lower back plate: Material

Steel

Tensile strength

26-30 tons

Thickness

1 1/4"

Pitch of stays at wide water space

14"

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 5/8" + 3 3/8"

No. of threads per inch

6

Screw stays: Material

Steel

Tensile strength

26-30 tons

Diameter

At turned off part,

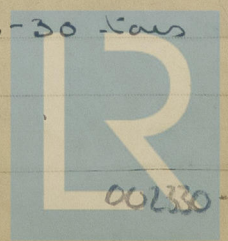
or

Over threads

1 3/4"

No. of threads per inch

9.



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Lloyd's Register  
Foundation



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Are the stays drilled at the outer ends Yes Margin stays: Diameter { At turned off part, 2" or Over threads

No. of threads per inch 9

Tubes: Material HRWS External diameter { Plain 3" Stay 3" Thickness { 8WG No. of threads per inch 9

Pitch of tubes 4 1/4" x 4 1/4" Manhole compensation: Size of opening in shell plate 20 x 16" Section of compensating ring 3-2 3/4" x 2-1 1/4" x 1 3/4" 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 - Steam Dome: Material Wm.

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 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

The foregoing is a correct description,  
FOR THE CENTRAL MARINE ENGINE WORKS  
(M. Gray & Co. Ltd.) Manufacturer.

Dates { During progress of work in shops - - - 1944 Feb. 23 Mar. 7 20 23 28 April 4 5 11 while building { During erection on board vessel - - -

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

Total No. of visits 8

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. Boiler R369 RPTN° 18520

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been built under special survey and in accordance with the approved plans for a working pressure of 215 lbs per square inch.

The materials and workmanship have been found good.

Upon completion the boiler was tested in the presence of the undersigned by a hydraulic pressure of 373 lbs per square inch. showed no signs of weakness and was found tight and sound in every respect at that pressure.

This boiler is being despatched to Newcastle for fitting on board.

This boiler has been securely fixed on board Briar Sunderland

The boiler has been tested under steam & safety valves adjusted to 215 lb/sq"

J. Walker  
Newcastle

Survey Fee ... .. £ 20 : 12 : 0 When applied for, 25<sup>th</sup> April 1944

Travelling Expenses (if any) £ : : When received, 19

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

Committee's Minute FBI. 3 NOV 1944

Assigned see minute on  
J.E. Rpt.