

REPORT ON BOILERS.

Received at London Office

8 OCT 1943

7 NOV 1944

Date of writing Report

7. 10. 1943

When handed in at Local Office

7. 10. 1943

Port of BARROW.

No. in Survey held at

BarrowDate, First Survey 7-11-41Last Survey 24-7-1942

Reg. Book.

EMPIRE COWDRAY.(Number of Visits 41)Gross 7072Tons Net 4816

on the

Master

Built at SunderlandBy whom built Shipbuilding Co. (Sunderland)Yard No. 4 When built 1944

Engines made at

By whom made

Engine No.

When made

Boilers made at

Barrow.

By whom made

Vickers-Armstrongs & Co.Boiler No. 828

When made

Nominal Horse Power

Owners Ministry of War Transport

Port belonging to

MULTITUBULAR BOILERS ~~M.A.B.~~, AUXILIARY, ~~OR DONKEY~~.

Manufacturers of Steel

Colville's Ltd(Letter for Record S.)

Total Heating Surface of Boilers

1786 sq. ft.

Is forced draught fitted

Yes.Coal or Oil fired Coal.

No. and Description of Boilers

One S.B.Working Pressure 220 lbs/sq. in.

Tested by hydraulic pressure to

380 lbs/sq. in.

Date of test

26-6-42

No. of Certificate

481

Can each boiler be worked separately

Area of Firegrate in each Boiler

45 sq. ft.

No. and Description of safety valves to each boiler

2 Spring loaded improved high lift.

Area of each set of valves per boiler

per Rule 4.75 sq. in.

Pressure to which they are adjusted

220

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

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

Is the bottom of the boiler insulated

Yes.

Largest internal dia. of boilers

12'-9 1/2"Length 11'-6"

Shell plates: Material

SteelTensile strength 29/35 tons/sq. in.

Thickness

1 1/4"

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 5/16"

long. seams

1 5/16"

Pitch of rivets

3.79"9/8"

Percentage of strength of circ. end seams

plate 65.3%rivets 45.2%

Percentage of strength of circ. intermediate seam

plate 85.6%rivets 87.8%

Percentage of strength of longitudinal joint

plate 85.6%rivets 87.8%combined 89.7%

Working pressure of shell by Rules

Thickness of butt straps

outer 1"inner 1 1/8"

No. and Description of Furnaces in each Boiler

3 cf. Daylight section.

Material

Steel

Tensile strength

26/30 tons/sq. in.

Smallest outside diameter

37 1/4"

Length of plain part

top 19 1/32"bottom 19 1/32"

Thickness of plates

crown 19 1/32"bottom 19 1/32"

Description of longitudinal joint

lap joint.

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/sq. in.

Thickness

1 7/32"Pitch of stays 19" x 16"

How are stays secured

Auto inside & out.

Working pressure by Rules

26/30 tons/sq. in.

Thickness

15 1/16"

Tube plates: Material

front Steelback Steel

Tensile strength

do.

Thickness

25 1/32"

Mean pitch of stay tubes in nests

9 7/16"

Pitch across wide water spaces

14" x 8 1/2"

Working pressure

front do.back do.

Girders to combustion chamber tops: Material

Steel

Tensile strength

28/32 tons/sq. in.

Depth and thickness of girder

at centre

8 1/2" x 1 1/4" (7 1/8" x 2)

Length as per Rule

31 7/32"

Distance apart

7"

No. and pitch of stays

in each

2 @ 10"

Working pressure by Rules

Combustion chamber plates: Material

Steel

Tensile strength

26/30 tons/sq. in.

Thickness: Sides

1 1/16"

Back

1 1/16"

Top

1 1/16"

Bottom

3/4"

Pitch of stays to ditto: Sides

7" x 10"

Back

8" x 9 1/4"

Top

7" x 10"

Are stays fitted with nuts or riveted over

Yes.

Working pressure by Rules

Front plate at bottom: Material

Steel

Tensile strength

26/30 tons/sq. in.

Thickness

15 1/16"

Lower back plate: Material

Steel

Tensile strength

26/30 tons/sq. in.

Thickness

27 1/32"

Pitch of stays at wide water space

14" x 8"

Are stays fitted with nuts or riveted over

Yes.

Working Pressure

Main stays: Material

Steel

Tensile strength

28/32 tons/sq. in.

Diameter

At body of stay, 2 7/8"Over threads 2 1/2"

No. of threads per inch

6

Area supported by each stay

304 sq. in.

Working pressure by Rules

Screw stays: Material

Steel

Tensile strength

26/30 tons/sq. in.

Diameter

At turned off part, 1 3/4"Over threads 1 3/4"

No. of threads per inch

9

Area supported by each stay

74 sq. in.

Working pressure by Rules _____ Are the stays drilled at the outer ends *No* Margin stays: Diameter { At turned off part, or Over threads *1 1/8" x 2" @ Corners*

No. of threads per inch *9* Area supported by each stay *93 sq"* Working pressure by Rules _____

Tubes: Material *Steel* External diameter { Plain *3"* Stay *3"* Thickness { *3/16"* *3/8"* 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 in end of shell 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 *Top manhole 3 1/8" Bottom manhole 3 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 _____ Working pressure by Rules _____ Thickness of crown _____ No. and diameter of 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 _____ 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 _____ Working pressure as per Rules _____ 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, for Vickers-Armstrongs Ltd. Manufacturer. *Mitchell*

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 *No* If so, state Vessel's name and Report No. *Vickers-Armstrongs 827. Rpt No 10*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

This Boiler has been constructed under Special Survey in accordance with the approved plans, the Rules & the Specification. The materials & workmanship are good & when tested by hydraulic pressure it was found tight & satisfactory in every respect.

The Boiler has been dispatched to Sunderland, for fitting on-board a vessel (yard no 4) building at Messrs J. & S. Thompson & Sons Ltd.

This boiler has now been securely fixed on board the vessel & safety valves adjusted to working pressure.

In recommendation please see Mach. Rpt. D. H. Asw.

Survey Fee ... £ : : } When applied for, 10

Travelling Expenses (if any) £ : : } When received, 10

D. H. Asw.
Engineer Surveyor to Lloyd's Register of Shipping.