

REPORT ON BOILERS.

No. 2855

Received at London Office

25 DEC 1941

Date of writing Report

17.12.41

When handed in at Local Office

19

Port of

Barrow.

No. in Survey held at

Barrow.

Date, First Survey

20.1.41

Last Survey

12.12.1941

Reg. Book.

(Number of Visits 39.)

Gross 7023.65

on the

1/2 EMPIRE BAXTER.

Tons Net 5056.10

Master

Built at

Barrow.

By whom built

Vickers Armstrongs Ltd

Yard No. 787

When built 1941

Engines made at

Glasgow.

By whom made

Barday Curle & Co.

Engine No. Ew 133

When made 1941

Boilers made at

Barrow.

By whom made

Vickers Armstrongs Ltd

Boiler No. 787

When made 1941

Nominal Horse Power

516

Owners

Ministry of War Transport.

Port belonging to

Barrow.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

(See also General Report No. 2854.)
to Auxiliary Boilers.

Manufacturers of Steel

Castlles.

(Letter for Record 5.)

Total Heating Surface of Boilers

5830 sq. ft.

(See also Report on Auxiliary Boilers.)

Is forced draught fitted

Yes.

Coal or Oil fired

No. and Description of Boilers

Two Cylindrical Multitubular, Single ended.

Working Pressure

220 lb/sq. in.

Tested by hydraulic pressure to

380 lb/sq. in.

Date of test

14.10.41

No. of Certificate

474

Can each boiler be worked separately

Yes.

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

Area of each set of valves per boiler

per Rule

15.52

as fitted

5.93 x 2

Pressure to which they are adjusted

225 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

1.4" (insulated)

Is oil fuel carried in the double bottom under boilers

No.

Smallest distance between shell of boiler and tank top plating

2.2"

Is the bottom of the boiler insulated

Yes.

Largest internal dia. of boilers

16' 3"

Length

12' 8"

Shell plates: Material

Steel

Tensile strength

29/30 ton/sq. in.

Thickness

1 1/2"

Are the shell plates welded or flanged

Ends flanged

Description of riveting: circ. seams

end

inter.

Long. seams

T.R. Butt Strap

Diameter of rivet holes in

circ. seams

1 1/8"

Pitch of rivets

4 1/4"

Percentage of strength of circ. end seams

plate

61.5

rivets

48.7

Percentage of strength of circ. intermediate seam

plate

55.3

rivets

33.9

Percentage of strength of longitudinal joint

plate

55.3

rivets

17.2

combined

38.1

Working pressure of shell by Rules

226 lb/sq. in.

Thickness of butt straps

outer

1 1/4"

inner

1 3/8"

No. and Description of Furnaces in each Boiler

4 Brighton Corrugated

Material

Steel

Tensile strength

26/30 ton/sq. in.

Smallest outside diameter

3' 8 1/4"

Length of plain part

top

bottom

Thickness of plates

crowd

2 1/2"

Description of longitudinal joint

Weld.

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

Working pressure of furnace by Rules

223 lb/sq. in.

End plates in steam space: Material

Steel

Tensile strength

26/30 ton/sq. in.

Thickness

1 1/2"

Pitch of stays

20" - 22"

How are stays secured

Double nuts & washers

Working pressure by Rules

234 lb/sq. in.

End plates: Material

front

Steel

back

Steel

Tensile strength

26/30 ton/sq. in.

Thickness

1 1/2"

13"

16"

Can pitch of stay tubes in nests

12 3/4" x 8 1/2"

Pitch across wide water spaces

14"

Working pressure

front 244 lb/sq. in.

back 220 lb/sq. in.

Orders to combustion chamber tops: Material

Steel

Tensile strength

29/33 ton/sq. in.

Depth and thickness of girder

Centre

10 1/2" x 2 at 3/4"

Length as per Rule

2' 10 7/16"

Distance apart

9 1/2"

No. and pitch of stays

Each

3 at 8 1/2"

Working pressure by Rules

231 lb/sq. in.

Combustion chamber plates: Material

Steel

Tensile strength

26/30 ton/sq. in.

Thickness: Sides

3/4"

Back

3/4"

Top

3/4"

Bottom

7/8"

Pitch of stays to ditto: Sides

8 1/2" x 9 1/2"

Back

8 1/2" x 9 1/2"

Top

8 1/2" x 9 1/2"

Are stays fitted with nuts or riveted over

nuts (pin side)

Working pressure by Rules

244 lb/sq. in.

Front plate at bottom: Material

Steel

Tensile strength

26/30 ton/sq. in.

Thickness

1 1/2"

Lower back plate: Material

Steel

Tensile strength

26/30 ton/sq. in.

Thickness

1"

Pitch of stays at wide water space

9" x 14 1/4"

Are stays fitted with nuts or riveted over

nuts (pin side)

Working Pressure

282 lb/sq. in.

Main stays: Material

Steel

Tensile strength

28/32 ton/sq. in.

Grip

At body of stay,

or

Over threads

3 1/2" (area 8.48 sq. in.)

No. of threads per inch

6

Area supported by each stay

440 sq. in.

Working pressure by Rules

As asphended.

Screw stays: Material

Steel

Tensile strength

26/30 ton/sq. in.

Grip

At turned off part,

or

Over threads

1 3/4" (2.03 sq. in.)

No. of threads per inch

9

Area supported by each stay

90.7 sq. in.

Working pressure by Rules 220 lb Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 2" (2.75" max) Over threads 2" (2.75" max) }
No. of threads per inch 9 Area supported by each stay 80.75 sq Working pressure by Rules 225 lb
Tubes: Material 1 1/2 in External diameter { Plain 3" Stay 3" } Thickness { 5/16 + 3/8 } No. of threads per inch 9
Pitch of tubes 4 1/4 x 4 1/8 Working pressure by Rules 232 lb Manhole compensation: Size of open shell plate 16 x 12 Section of compensating ring 2'-9" x 2'-6" No. of rivets and diameter of rivet holes 28 at 1 1/8"
Outer row rivet pitch at ends 11 1/16 Depth of flange if manhole flanged 3 1/2 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 Working pressure by Rules Thickness of crown No. and diameter
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
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
Rules Pressure to which the safety valves are adjusted Hydraulic test pressure
tubes forgings and castings and after assembly in place Are drain cocks
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 VICKERS-ARMSTRONGS LIMITED,
Mitchell Manufacturer

Dates of Survey { During progress of work in shops - - - 1941. Jan 20 Feb 4-14-17 March 5-10-11-24 Apr 1-15 May 5-30 June 6 July 2 4 15 17-28 Aug 7-20-24
while building { During erection on board vessel - - - 1941. Oct 16 17 26 28-31 Nov 3-15-17-26-27 }
Total No. of visits 39

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. "EMPIRE" Baltimore No 2839

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

The boilers have been constructed in accordance with Rule requirements & approved plans. The materials & workmanship are sound & good. They have been efficiently installed on the vessel & their safety valves adjusted under steam as above.

Survey Fee £ 10 When applied for, 19
Travelling Expenses (if any) £ 10 When received, 19

Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute

FRI 9 JAN 1942

Assigned

Leo J. E. Machy rpl



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