

Rpt. 5a.

REPORT ON BOILERS.

No. 52004

Date of writing Report

10

When handed in at Local Office

15 MAY 1943

19

Port of

HULL.

Received at London Office

17 MAY 1943

No. in Survey held at

HULL.

Date, First Survey

16. 12. 42.

Last Survey

3.

1943

on the

STEAM TUG

EMPIRE JOAN.

(Number of Visits

10)

Tons

Gross

203

Net

Nil

Built at

SELBY.

By whom built

Cochrane & Sons Ltd

Yard No. 1262

When built

1943

Engines made at

By whom made

Mackie and Bostel Ltd

Engine No. 1336

When made

Boilers made at

HULL.

By whom made

Amos & Smith Ltd.

Boiler No. 719

When made

Nominal Horse Power

106

Owners

Ministry of War Transport

Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Appleby, Frodingham Steel Co. Ltd. and Colvill

(Letter for Record

5.

Total Heating Surface of Boilers

1950 sq. ft.

Is forced draught fitted

No.

Coal or Oil fired

Coal

No. and Description of Boilers

One S.B.

Working Pressure

200 lb./sq. in.

Tested by hydraulic pressure to

350 lb./sq. in.

Date of test

12.2.42

No. of Certificate

4189.

Can each boiler be worked separately

—

Area of Firegrate in each Boiler

50.6 sq. ft.

No. and Description of safety valves to each boiler

2. Spring loaded

2 1/2"

Area of each set of valves per boiler

{per Rule

11.34.

{as fitted

11.88.

Pressure to which they are adjusted

200 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

None

Smallest distance between boilers or uptakes and bunkers or woodwork

14".

Is oil fuel carried in the double bottom under boilers

None

Smallest distance between shell of boiler and tank top plating

None

Is the bottom of the boiler insulated

Yes.

Largest internal dia. of boilers

14'-6"

Length

10'-8"

Shell plates: Material

Steel

Tensile strength

29-33 ton/10"

Thickness

1 1/2"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

{end

DR

Exp.

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

{3-81

8 5/8"

Percentage of strength of circ. end seams

{plate

68%.

{rivets

42%.

Percentage of strength of circ. intermediate seam

{plate

85.1%.

{rivets

86.3%.

Percentage of strength of longitudinal joint

{plate

85.1%.

{rivets

86.3%.

{combined

86.8%.

Thickness of butt straps

{outer

1 1/8"

No. and Description of Furnaces in each Boiler

3 plain (Withdrawable)

Material

Steel

Tensile strength

26-30 ton/10"

Smallest outside diameter

(3'-5 3/8")

3'-6"

Length of plain part

{top

5'-10 1/2"

{bottom

5'-4 3/8"

Thickness of plates

{crown

3 13/16"

{bottom

3 13/16"

Description of longitudinal joint

Weld

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

None

End plates in steam space: Material

Steel

Tensile strength

26-30 ton/10"

Thickness

1 3/16"

Pitch of stays

20" x 18"

How are stays secured

Nuts and large washers outside

Nuts and washers inside

Tube plates: Material

{front

Steel

{back

Steel

Tensile strength

26-30 ton/10"

Thickness

1 5/16"

7/8"

Mean pitch of stay tubes in nests

9 3/4" x 9 1/2"

Pitch across wide water spaces

14" x 9 1/2"

Girders to combustion chamber tops: Material

Steel

Tensile strength

29-33 ton/10"

Depth and thickness of girder

at centre

9 1/2" x 7/8" I-beam

Length as per Rule

3'-0 1/2"

Distance apart

9"

in each

3 @ 8 3/4"

No. and pitch of stays

Combustion chamber plates: Material

Steel

Tensile strength

26-30 ton/10"

Thickness

Sides

3/4"

Back

23/32"

Top

23/32"

Bottom

3/4"

Pitch of stays to ditto: Sides

8 3/4" x 9"

Back

9" x 8 1/2"

Top

8 3/4" x 9"

Are stays fitted with nuts or riveted over

Nuts

Front plate at bottom: Material

Steel

Tensile strength

26-30 ton/10"

Thickness

15/16"

Lower back plate: Material

Steel

Tensile strength

26-30 ton/10"

Thickness

29 3/32"

Pitch of stays at wide water space

14 1/2" x 8 1/2"

Are stays fitted with nuts or riveted over

Nuts.

Main stays: Material

Steel

Tensile strength

28-32 ton/10"

Diameter

{At body of stay,

3 1/2"

{Over threads

No. of threads per inch

6

Screw stays: Material

Steel

Tensile strength

26-30 ton/10"

Diameter

{At turned off part,

1 3/4"

{Over threads

No. of threads per inch

9.

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Foundation

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Margin stays: Diameter { At turned off part, -
or
Over threads 2" - 1 7/8" - 1 3/4"

Tubes: Material L.W. Iron. External diameter { Plain 3 1/2"
Stay 3 1/2" Thickness { 8 W.G.
5/16" No. of threads per inch 9

Outer row rivet pitch at ends $9\frac{1}{2}$ Depth of flange if manhole flanged $3\frac{1}{8}$ 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
15051	1000	100	78122

Internal diameter 2.55 66.04 mm Thickness of crown 1.51 38.1 mm 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
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
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358	359	360
361	362	363
364	365	366

of rivets in outer row in dome connection to shell

Type of Superheater

Manufacturers of

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	forains and castings	and after assembly in place	Are drain cocks on
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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.

Manufacturer

Dates of Survey while building	During progress of work in shops - -	1942 Dec 16, Jan 14, Mar 20, Apr 5, 6, 9, 13, 16, 28, May 3.	Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
	During erection on board vessel - -		Total No. of visits 10.

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. U.S. [EMPIRE] ARBY.

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

The Boiler has been constructed under Special Survey in accordance with the Rules and the approved plans.

The Workmanship and Materials are good and when subjected to an hydraulic test of 350 lbs/sq. in. it was found satisfactory in every respect.

The above boiler examined under steam, safety valves adjusted as above. Accumulation test held ^{and} afterwards ^{examined} ^{and} afterwards ^{examined} after all trials. ^{by} S. Shields

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

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

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