

REPORT ON BOILERS.

No. 17332.

Received at London Office

2 DEC 1942

Date of writing Report

19

When handed in at Local Office

19

Port of

Middlesbrough.

No. in Survey held at
Reg. Book.

Stockton.

Date, First Survey

18th Sept, 1941

Last Survey

16th Sept, 1942

1942

on the *Single Screw Steamer* "EMPIRE ARIEL"

(Number of Visits

22.)

Gross

129

Tons

Net

11

Built at

Thorne

By whom built

Richard Dunsdon Ltd.

Yard No.

T373

When built

1942

Engines made at

Yarmouth

By whom made

Crabtree (1931) Ltd.

Engine No.

632

When made

1942

Boilers made at

Stockton.

By whom made

Stockton Chemical Engineers & Riley Boilers Ltd.

Boiler No.

6585

When made

1942

Nominal Horse Power

Owners

Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

The Steel Company of Scotland.

(Letter for Record

S

Total Heating Surface of Boilers

1367 sq

Is forced draught fitted

Yes

Coal or Oil fired

Coal

No. and Description of Boilers

1 S.E. Marine Boiler

Working Pressure

200 lb/sq

Tested by hydraulic pressure to

350 lb/sq

Date of test

16/9/42

No. of Certificate

7057.

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

36.5 sq

No. and Description of safety valves to each boiler

1-2 1/2" Double S.V.

Area of each set of valves per boiler

{ per Rule

7.94

{ as fitted

9.8.

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

Yes

Smallest distance between boilers or uptakes and bunkers or overhead work

10"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

None

Is the bottom of the boiler insulated

No

Largest internal dia. of boilers

11'-6"

Length

11'-0"

Shell plates: Material

Steel

Tensile strength

29/30.

Thickness

1 1/2"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end

DR.

long. seams

TR. D.B.S.

Diameter of rivet holes in

{ circ. seams

1 1/4"

{ long. seams

1 1/6"

Pitch of rivets

3-6"

7-8"

Percentage of strength of circ. end seams

{ plate

65.4

{ rivets

52.2

Percentage of strength of circ. intermediate seam

{ plate

85.59

{ rivets

86.66

Percentage of strength of longitudinal joint

{ plate

85.59

{ rivets

86.66

{ combined

86.45.

Thickness of butt straps

{ outer

13/16"

{ inner

15/16"

No. and Description of Furnaces in each Boiler

2 Furnaces.

Material

Steel.

Tensile strength

26/30.

Smallest outside diameter

3'-5"

Length of plain part

{ top

"

{ bottom

"

Thickness of plates

{ crown

19/32"

{ 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

Thickness

15/16"

Pitch of stays

16" x 1/4" x 1/4"

How are stays secured

D. Nuts & Washers.

Tube plates: Material

{ front

Steel.

{ back

"

Tensile strength

26/30.

Thickness

15/16"

7/8"

Mean pitch of stay tubes in nests

8 7/8"

Pitch across wide water spaces

14"

Girders to combustion chamber tops: Material

Steel

Tensile strength

28/32

Depth and thickness of girder

at centre

7 3/4" - 2 @ 3/4"

Length as per Rule

2'-6"

Distance apart

8 1/4"

No. and pitch of stays

in each

2 - 9 1/4"

Combustion chamber plates: Material

Steel.

Tensile strength

26/30

Thickness: Sides

1 1/6"

Back

1 1/6"

Top

1 1/6"

Bottom

1 1/6"

Pitch of stays to ditto: Sides

9 1/4" x 8 1/4"

Back

9 1/2" x 8 1/2"

Top

8 1/4" x 9 1/4"

Are stays fitted with nuts or riveted over

Nuts.

Front plate at bottom: Material

Steel.

Tensile strength

26/30.

Thickness

15/16"

Lower back plate: Material

Steel.

Tensile strength

26/30.

Thickness

15/16"

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

Diameter

{ At body of stay,

2 5/8"

{ Over threads

"

No. of threads per inch

6.

Screw stays: Material

Steel.

Tensile strength

26/30

Diameter

{ At turned off part,

17/8" - 1 3/4"

{ Over threads

"

No. of threads per inch

9.



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007563-007571-0097

Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part. or Over threads 17/8"

No. of threads per inch 9.

Tubes: Material Weldless Steel External diameter { Plain 2 3/4" Stay 2 3/4" Thickness { 8 W.S. 5/16" No. of threads per inch 9.

Pitch of tubes 4" x 3 1/4" Manhole compensation: Size of opening in shell plate 17" x 21" Section of compensating ring 7 1/2" x 1/32" No. of rivets and diameter of rivet holes 52 - 1 1/16"

Outer row rivet pitch at ends 7 1/2" Depth of flange if manhole flanged ✓ Steam Dome: Material hess.

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,

Manufacturer.

Dates of Survey { During progress of work in shops - - - 1941. Sept. 18. 26. Oct. 2. 9. 22. Nov. 13. Dec. 4. 23. 30. Are the approved plans of boiler and superheater forwarded herewith 16. 4. 41. while building { During erection on board vessel - - - 1942. Jan. 4. 19. 28. Feb. 6. 19. 24. Mar. 13. 28. Aug. 14. Sept. 1. 10. 16. (If not state date of approval.)

Total No. of visits 12.

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. 17177.

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

This boiler has been constructed under Special Survey, & in accordance with the Rule Requirements & found satisfactory, & in accordance with the approved plan.

The materials & workmanship are good & on completion the boiler was hydrostatically tested to 350 lb./sq. in. & found satisfactory.

This boiler has been dispatched to Messrs Richard Dunston's Yard, Thorne.

Boiler fitted in "EMPIRE ARIEL" in accordance with the Rules, & examined under steam, safety valves adjusted to 200 lb. & furnaces & combustion chambers examined after trials. - - - to S. Shield.

Survey Fee ... £ 9 : 2 : 0 When applied for, 21st SEPT., 1942.

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

C. L. L. L. L.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 15 DEC 1942

Assigned

See HUL 2E 51819



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