

## REPORT ON BOILERS.

No. 70085

Date of writing Report

19

When handed in at Local Office

29.10.1945

Received at London Office

22 NOV 1945

Port of

Glasgow

No. in Survey held at  
Reg. Book.

Glasgow

Date, First Survey

10.5.1943

Last Survey

20th Oct. 1945

on the

SS "EMPIRE CRUSOE"

(Number of Visits 34)

Gross 2958

Net 1672

Master

Built at

Troon

By whom built

Ailsa S.B. Co. Ltd

Yard No.

448

When built 1945

Engines made at

TROON

By whom made

AILSA S.B. CO. LTD

Engine No. 190

When made 1945

Boilers made at

Glasgow

By whom made

David Rowan &amp; Co. Ltd

Boiler No. 8465

When made 1945

Nominal Horse Power

Owners

Ministry of War Transport

Port belonging to Troon

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

Manufacturers of Steel

The Steel Company of Scotland, Ltd.

(Letter for Record 5 ✓)

Total Heating Surface of Boilers

3840 sq ft

Is forced draught fitted

yes

Coal or Oil fired

Coal

No. and Description of Boilers

Two S.E. boilers.

Working Pressure 200 lbs/sq in

Tested by hydraulic pressure to

350 lbs/sq in

Date of test

4.12.44

No. of Certificate

21762

Area of Firegrate in each Boiler

434 sq ft

No. and Description of safety valves to each boiler

Two 3 1/2" improved high lift

Area of each set of valves per boiler

per Rule approved 11.16

as fitted 16.59 sq in

Pressure to which they are adjusted

200

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

well clear

Is oil fuel carried in the double bottom under boilers

no

Smallest distance between shell of boiler and tank top plating

20"

Is the bottom of the boiler insulated

yes (20") see letter 13/12/45

Largest internal dia. of boilers

13'-6"

Length

11'-6"

Shell plates: Material

S.

Tensile strength

29/33 Tons

Thickness

1 3/16"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end D.R.

long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams

B.E. 1 1/4" F.E. 1 3/8"

Pitch of rivets

B.E. 3.373" F.E. 3.184"

Percentage of strength of circ. end seams

plate

B.E. 62.9 F.E. 62.7

Percentage of strength of circ. intermediate seam

plate

B.E. 48.8 F.E. 46.6

Percentage of strength of longitudinal joint

plate

85.7

Percentage of strength of longitudinal joint

rivets

87.8

Percentage of strength of longitudinal joint

combined

89

Working pressure of shell by Rules

✓

Thickness of butt straps

outer 29"

inner 1 1/2"

No. and Description of Furnaces in each Boiler

3 Dighton

Material

S

Tensile strength

26/30 Tons

Smallest outside diameter

3'-2 7/16"

Length of plain part

top

bottom

Thickness of plates

crown

17"

Description of longitudinal joint

welded

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

✓

Working pressure of furnace by Rules

✓

End plates in steam space: Material

S.

Tensile strength

26/30 Tons

Thickness

1 5/32"

Pitch of stays

18" x 17"

How are stays secured

D.N.

Working pressure by Rules

✓

Tube plates: Material

front S.

back S.

Tensile strength

26/30 Tons

Thickness

29"

32"

lean pitch of stay tubes in nests

9.58"

Pitch across wide water spaces

14"

Working pressure

front

back

Girders to combustion chamber tops: Material

S.

Tensile strength

28/32 Tons

Depth and thickness of girder

at centre

2 @ 9" x 7/8"

Length as per Rule

2'-10 19/32"

Distance apart

9 1/4"

No. and pitch of stays

each

3 @ 8 1/4"

Working pressure by Rules

✓

Combustion chamber plates: Material

S.

Tensile strength

26/30 Tons

Thickness: Sides

11/16"

Back

2 1/32"

Top

11/16"

Bottom

11/16"

Pitch of stays to ditto: Sides

9 1/4" x 8 1/4"

Back

9" x 8"

Top

9 1/4" x 8 1/4"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

✓

Front plate at bottom: Material

S.

Tensile strength

26/30 Tons

Thickness

29"

32"

Lower back plate: Material

S.

Tensile strength

26/30 Tons

Thickness

25"

32"

Pitch of stays at wide water space

13 1/2"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

✓

Main stays: Material

S.

Tensile strength

28/32 Tons

Diameter

At body of stay,

or

Over threads

2 3/4" &amp; 3"

No. of threads per inch

6

Area supported by each stay

Working pressure by Rules

✓

Screw stays: Material

S.

Tensile strength

26/30 Tons

Diameter

At turned off part,

or

Over threads

15/8"

No. of threads per inch

9

Area supported by each stay

✓



Working pressure by Rules ✓ Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part. ✓  
or Over threads 1 1/4", 1 3/8", 2" ✓  
No. of threads per inch 9 ✓ Area supported by each stay 3" ✓ Working pressure by Rules 8 W.G. ✓  
Tubes: Material S ✓ External diameter { Plain 3" ✓ Thickness { 1/4", 5/16", 3/8" ✓ No. of threads per inch 9 ✓  
Stay 3" ✓  
Pitch of tubes 4 3/16" x 4 3/8" ✓ Working pressure by Rules ✓ Manhole compensation: Size of opening in  
end 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 4" ✓ 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 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 David Rowan & Co. Ltd. Manufacturer.  
Arch. H. Emerson

Dates of Survey { During progress of work in shops - - 1943 May 10, 21, Jun 22, Jul 2, Aug 30, Sep 10, Oct 11, 28, Nov 10, 1944 Feb 10, 24, Mar 10, 20, Apr 25  
while building { During erection on board vessel - - Mar 9, 25, Jun 16, Jul 3, 13, Sep 8, Oct 18, Nov 14, Dec 5, 15, 1945 Jan 16, Feb 15, Mar 16  
Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)  
Total No. of visits 34

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. EMPIRE DIRT Nº 67844

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed under Special Survey in accordance with the Society's Rules and Regulations approved plans and Ministry of War Transport Specification. The materials and workmanship are good. They have been satisfactorily installed in the vessel, the safety valves adjusted under steam to the working pressure. The boilers have been tried under full working conditions and found satisfactory.

Survey Fee ... £ 25 : 6 : - } When applied for, 20 NOV 1945  
Spec. Travelling Expenses (if any) £ 6 : 6 : - } When received, 19

Gas Stevenson & J Cranford.  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 20 NOV 1945

Assigned

SEE ACCOMPANYING MACHINERY REPORT



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Foundation