

## REPORT ON BOILERS.

No. 64680

Received at London Office

19 NOV 1941

Date of writing Report

When handed in at Local Office

17. 11. 19

Port of

Glasgow

No. in Reg. Book. Survey held at

Date, First Survey

13. 6. 41

Last Survey

5. 11. 19

41

on the

EMPIRE CADET.

(Number of Visits 10)

Tons { Gross  
Net

Master

Built at

Grangemouth

By whom built

Grangemouth Dry Dock

Yard No. 436.

When built

Engines made at

By whom made

Engine No.

When made

Boilers made at

Glasgow

By whom made

J. D. Roman &amp; Co. Ltd

Boiler No. 8456.

When made 1941

Nominal Horse Power

Owners

Port belonging to

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

Manufacturers of Steel

Mott Company Scotland

(Letter for Record

S

Total Heating Surface of Boilers

2100 sq ft

Is forced draught fitted

Yes

Coal or Oil fired

Oil

No. and Description of Boilers

One single ended.

Working Pressure

190 lbs

Tested by hydraulic pressure to

335 lbs

Date of test

25/10/41

No. of Certificate

20897

Can each boiler be worked separately

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

3 Ordinary Double Spring

Area of each set of valves per boiler

per Rule

12.32

as fitted

14.2 in.

Pressure to which they are adjusted

190

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

2' 1"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

3' 6"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

14' 6"

Length

11' 6"

Shell plates: Material

S

Tensile strength

27-33 Tons

Thickness

1 3/4"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end DR. overlap

long. seams

D.B. TR

Diameter of rivet holes in

circ. seams

3 1/8" F 1 3/8"

Pitch of rivets

3.3528" F 3.2"

Percentage of strength of circ. end seams

plate 85.3

rivets 85.0

Percentage of strength of circ. intermediate seam

plate

Percentage of strength of longitudinal joint

plate 85.3

rivets 92.5

Working pressure of shell by Rules

Thickness of butt straps

outer 3/4"

inner 1 3/4"

No. and Description of Furnaces in each Boiler

3 Duglton

Material

S

Tensile strength

26-30 Tons

Smallest outside diameter

42 1/8"

Length of plain part

top

Thickness of plates

crown

9/16"

Description of longitudinal joint

butt

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 1/4"

Pitch of stays

20 1/2" x 18 1/2"

How are stays secured

double nuts

Working pressure by Rules

Tube plates: Material

front

S

Tensile strength

26-30 Tons

Thickness

2 1/4"

3/4"

Mean pitch of stay tubes in nests

9 1/8"

Pitch across wide water spaces

13 3/4"

Working pressure

front

Girders to combustion chamber tops: Material

S

Tensile strength

28-32 Tons

Depth and thickness of girder

at centre

10' x 1 3/4"

Length as per Rule

29 9/16"

Distance apart

9' 4"

No. and pitch of stays

in each

3 @ 10"

Working pressure by Rules

Combustion chamber plates: Material

S

Tensile strength

26-30 Tons

Thickness: Sides

23"

Back

11"

Top

23"

Bottom

23"

Pitch of stays to ditto: Sides

10' x 9 1/4"

Back

9 3/4" x 8 1/4"

Top

10' x 9 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

2 1/4"

Lower back plate: Material

S

Tensile strength

26-30 Tons

Thickness

2 1/4"

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, 3" + 2 3/4"

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, 1 5/8" + 1 3/4"

No. of threads per inch

9

Area supported by each stay

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Working pressure by Rules 190 & 196 Are the stays drilled at the outer ends *Yes* Margin stays: Diameter { At turned off part. or Over thread  $\frac{3}{4} \times 1 \frac{1}{8}$  }  
No. of threads per inch 9 Area supported by each stay Working pressure by Rules  
Tubes: Material *S* External diameter { Plain  $2 \frac{3}{4}$  Stay  $2 \frac{1}{2}$  } Thickness {  $\frac{5}{16}$   $9 \frac{1}{2}$  } No. of threads per inch 9  
Pitch of tubes  $4 \times 3 \frac{1}{2}$  Working pressure by Rules Manhole compensation: Size of opening in  
shell plate  $19 \frac{1}{2} \times 15 \frac{1}{2}$  Section of compensating ring  $9 \frac{1}{2} \times 1 \frac{1}{2}$  No. of rivets and diameter of rivet holes  $34 \text{ } \phi 1 \frac{5}{16}$   
Outer row rivet pitch at ends Depth of flange if manhole flanged 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

The foregoing is a correct description,  
For David Rougan T.C. & Co. Manufacturer.  
Arch. H. Grierson

Dates of Survey { During progress of work in shops - - } 1941 June: 13-20 July: 6-16 Aug: 22  
while building { During erection on board vessel - - } Sep: 16 Oct: 3-17 Nov: 5  
Are the approved plans of boiler and superheater forwarded herewith 9-11-40.  
(If not state date of approval.)  
Total No. of visits 10

Is this Boiler a duplicate of a previous case *Yes* If so, state Vessel's name and Report No. *EMPIRE LASS Gt Rgt N° 64794*

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

*This boiler has been built under special survey and in accordance with the Rules. The materials and workmanship are good. Specification requirements carried out. It has been forwarded to Grangemouth for fitting on board.*

Survey Fee £ 14 : - : -  
Travelling Expenses (if any) £ 3 : 10 : -

When applied for, 18 NOV 1941

When received, 2. 1. 1942

*Prof. J. Brown & A. J. Brown & W. J. Russell*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 18 NOV 1941

Assigned *Referred*



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