

## REPORT ON BOILERS.

No. 22047

Received at London Office

- 5 NOV 1942

Date of writing Report 24<sup>th</sup> OCT 1942. When handed in at Local Office 30<sup>th</sup> OCT. 1942. Port of

Greenock

No. in Survey held at Reg. Book.

Greenock

Date, First Survey 21<sup>st</sup> JANUARY '42. Last Survey 23<sup>rd</sup> OCT. 1942.

on the

EMPIRE PIBROCH.

(Number of Visits

Gross 7046

Tons Net 4906.

Built at Port Glasgow

By whom built

Lithgous Ltd.

Yard No. 980 When built 1942

Engines made at

Greenock

By whom made

Rankin &amp; Blackmore Ltd.

Engine No. 488 When made 1942

Boilers made at

Greenock

By whom made

Rankin &amp; Blackmore Ltd.

Boiler No. 488 When made 1942

Nominal Horse Power

544

Owners

Ministry of War Transport

Port belonging to

Greenock

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Colvilles Ltd.

Total Heating Surface of Boilers

5830 sq

Is forced draught fitted

Yes

(Letter for Record 5.

Coal or Oil fired

Coal.

No. and Description of Boilers

2 S.E. Multitubular

Working Pressure 220 lbs

Tested by hydraulic pressure to

380 lbs

Date of test 1/9/42.

No. of Certificate 2302

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

65 sq

No. and Description of safety valves to each boiler

2 Cockburns Improved High Lift

Area of each set of valves per boiler

per Rule 9.45

as fitted 11.85

Pressure to which they are adjusted

220 lbs

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

24"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

26"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

16'-3"

Length

12'-0"

Shell plates: Material

S.

Tensile strength

29/33 tons

Thickness

1 1/32"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end

D.R.

long. seams

T.R.O.B.S.

Diameter of rivet holes in

circ. seams

1 5/8"

Pitch of rivets

4.23

11 1/16"

Percentage of strength of circ. end seams

plate

61.5.

rivets

48.7.

Percentage of strength of circ. intermediate seam

plate

rivets

Percentage of strength of longitudinal joint

plate

85.3.

rivets

87.2.

combined

88.1.

Thickness of butt straps

outer 1 1/4"

inner 1 3/8"

No. and Description of Furnaces in each Boiler

4 Corrugated Right Hand Section

Material

S.

Tensile strength

26/30 tons

Smallest outside diameter

3'-5 5/16"

Length of plain part

top

bottom

Thickness of plates

crown

2 1/32"

Description of longitudinal joint

Weld.

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

End plates in steam space: Material

S.

Tensile strength

26/30 tons

Thickness

1 5/32"

Pitch of stays 22"x20"

How are stays secured

R. nuts and Washers.

Tube plates: Material

front

back

S.

Tensile strength

26/30 tons

Thickness

1 3/32"

13/16"

Mean pitch of stay tubes in nests

9 3/4"

Pitch across wide water spaces

14"

Girders to combustion chamber tops: Material

S.

Tensile strength

29/33 tons

Depth and thickness of girder

at centre

10 1/2" x 1 1/2"

Length as per Rule

34 7/16"

Distance apart

9 1/2"

No. and pitch of stays

in each

3 - 8 1/2"

Combustion chamber plates: Material

S.

Tensile strength

26/30 tons

Thickness: Sides

3/4"

Back

3/4"

Top

3/4"

Bottom

7/8"

Pitch of stays to ditto: Sides

9 1/2" x 8 1/2"

Back

9 1/2" x 8 1/2"

Top

9 1/2" x 8 1/2"

Are stays fitted with nuts or riveted over

nuts.

Front plate at bottom: Material

S.

Tensile strength

26/30 tons

Thickness

1 3/32"

Lower back plate: Material

S.

Tensile strength

26/30 tons

Thickness

1"

Pitch of stays at wide water space

14 1/4" x 9 1/2"

Are stays fitted with nuts or riveted over

nuts.

Main stays: Material

S.

Tensile strength

28/32 tons

Diameter

At body of stay,

or

Over threads

3 1/2"

No. of threads per inch

6.

Screw stays: Material

S.

Tensile strength

26/30 tons

Diameter

At turned off part,

or

Over threads

1 3/4"

No. of threads per inch

9.

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Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, 2" or Over threads

No. of threads per inch 9.

Tubes: Material S.S. steel External diameter { Plain 3" Stay Thickness { 5/16" 3/8" No. of threads per inch 9.

Pitch of tubes 4 1/4" x 4 1/8" **IN END PLATE.** Manhole compensation: Size of opening in

shell plate 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 1/4" 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 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 of 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 RANKIN & BLACKMORE LTD. Managing Director. Manufacturer.

Dates of Survey { During progress of work in shops - - } Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

while building { During erection on board vessel - - - } Total No. of visits

SEE MACHINERY REPORT

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. "Empire Bell" Sub. Rpt No. 21468

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been built under Special Survey in accordance with the Rules and the approved plans. The materials and workmanship are good.

For recommendation please see Machinery report.

Survey Fee ... £ Changed as Machinery Report When applied for, 19

Travelling Expenses (if any) £ When received, 19

M. Caldwell.  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 3 NOV 1942

Assigned ACCOMPANYING MACHINERY REPORT