

# REPORT ON BOILERS.

No. 23315

Received at London Office 22 MAY 1946

Date of writing Report 12<sup>th</sup> FEB 1946. When handed in at Local Office 17<sup>th</sup> MAY 1946. Port of Greenock

No. in Survey held at Greenock.

Date, First Survey 15<sup>th</sup> MARCH 1946. Last Survey 13<sup>th</sup> MAY 1946.

(Number of Visits 14.) Tons { Gross 294.83. Net 262.17.

on the "EMPIRE RITA" SINGAPORE  
Built at Port Glasgow. By whom built Ferguson Bros Ltd. Yard No. 378 When built 1946  
Engines made at Port Glasgow By whom made Ferguson Bros Ltd. Engine No. 378 When made 1946  
Boilers made at Greenock By whom made Rankin & Blackmore Ltd. Boiler No. 5094. When made 1946  
Nominal Horse Power Owners M.O.W.T. Port belonging to

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Columbles Ltd. (Letter for Record (S)  
Total Heating Surface of Boilers 2400 sq ft Is forced draught fitted Yes Coal or Oil fired Oil  
No. and Description of Boilers One cylindrical multitubular Working Pressure 200 lbs  
Tested by hydraulic pressure to 350 lbs Date of test 6/12/45 No. of Certificate 2411 Can each boiler be worked separately  
Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 2. Cochran's improved High Lift  
Area of each set of valves per boiler { per Rule 6.975 sq ft as fitted 7.952 sq ft Pressure to which they are adjusted 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 4'-0" Is oil fuel carried in the double bottom under boilers No  
Smallest distance between shell of boiler and tank top plating Is the bottom of the boiler insulated No

Largest internal dia. of boilers 14'-9 3/8" Length 11'-9" Shell plates: Material 5 Tensile strength 29/33 tons  
Thickness 1 5/16" Are the shell plates welded or flanged No Description of riveting: circ. seams { end D.R. inter. 3 3/4"  
Long. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams 1 5/16" Pitch of rivets { 8 1/2"  
Percentage of strength of circ. end seams { plate 64.9 rivets 43.56 Percentage of strength of circ. intermediate seam { plate 84.5 rivets 90.1  
Percentage of strength of longitudinal joint { plate 84.5 rivets 90.1 combined 87.0

Thickness of butt straps { outer 1 1/8" inner 1 1/8" No. and Description of Furnaces in each Boiler 3. Corrugated Reighton Section  
Material 5 Tensile strength 26/30 tons Smallest outside diameter 3'-7 1/4"  
Length of plain part { top 5/8" bottom 5/8" Thickness of plates { crown 5/8" bottom 5/8" Description of longitudinal joint Weld.  
Dimensions of stiffening rings on furnace or c.c. bottom

End plates in steam space: Material 5 Tensile strength 26/30 tons Thickness 1 1/4" Pitch of stays 20" x 18"  
How are stays secured Ruckle Nuts and Washers.

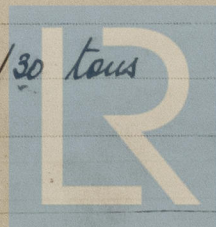
Tube plates: Material { front S back S Tensile strength { 26/30 tons Thickness { 1 5/16" 7/8"

Mean pitch of stay tubes in nests 8" x 7 3/8" Pitch across wide water spaces 13 1/2"  
Girders to combustion chamber tops: Material 5 Tensile strength 26/30 tons Depth and thickness of girder  
at centre 9 1/4" x 1 3/4" Length as per Rule 2'-10" Distance apart 10" No. and pitch of stays  
in each 3 - 1 3/4" - 8" Pitch.

Combustion chamber plates: Material 5 Tensile strength 26/30 tons Thickness: Sides 23/32" Back 11/16" Top 23/32" Bottom 23/32"  
Pitch of stays to ditto: Sides 9 1/2" x 8" Back 9 1/2" x 8 1/2" Top 8" x 9" Are stays fitted with nuts or riveted over Nuts

Front plate at bottom: Material S Tensile strength 26/30 tons Thickness 1 5/16" Lower back plate: Material 5 Tensile strength 26/30 tons Thickness 7/8"  
Pitch of stays at wide water space 13 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, 3 1/4" No. of threads per inch 6  
Over threads  
Screw stays: Material S Tensile strength 26/30 tons Diameter { At turned off part, 1 3/4" No. of threads per inch 9  
Over threads



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Are the stays drilled at the outer ends

Margin stays: Diameter { At turned off part, or Over threads 1 7/8" ✓

No. of threads per inch

9

Tubes: Material

Steel

External diameter

Plain

2 1/2"

Thickness

9 W. 4 5/16 3/8 7/16"

No. of threads per inch

9

Pitch of tubes

4" x 3 1/16"

Manhole compensation: Size of opening

shell plate

16" x 12"

Section of compensating ring

2'3" x 2'10" x 1 5/16"

No. of rivets and diameter of rivet holes

28 - 1 5/16"

Outer row rivet pitch at ends

8 1/2"

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

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 on

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

Dates of Survey { During progress of work in shops - - (1945) MAR. 15. JUNE 28. AUG. 9. 24. SEPT. 7. 18. 25. OCT. 15. 17. NOV. 1. DEC. 5. 6. while building { During erection on board vessel - - - (1946) MAY 9. 13.

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) 3-4-45

Total No. of visits 14

Is this Boiler a duplicate of a previous case

Yes

If so, state Vessel's name and Report No.

EMPIRE FRIEDOR GRN N°23237

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

This boiler has been built under Special Survey in accordance with the Rules and the approved plans. The materials and workmanship are good.

This boiler has been efficiently installed in the vessel & its safety valves adjusted under steam for a working pressure of 200 lbs/sq. in.

Charles J. Hunter

Survey Fee 7.25% £ 19 : 5 : 0

When applied for, 12<sup>th</sup> FEBY 19 46

Travelling Expenses (if any) £ : : :

When received, 1<sup>st</sup> MARCH 19 46

M. Caldwell for Riff and O.J. Treckner  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 21 MAY 1946

Assigned SEE ACCOMPANYING MACHINERY REPORT



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