

# REPORT ON BOILERS.

No. 10,179

Received at London Office

31 MAY 1929

Date of writing Report

192

When handed in at Local Office

30-5-1929

Port of

Belfast

No. in Survey held at

Belfast

Date, First Survey

1<sup>st</sup> January

Last Survey

27<sup>th</sup> May

1929

on the

Steel twin Sc.

SURINAM.

(Number of Visits 13.)

Gross Tons

Net

Master

Built at

Belfast

By whom built

Harland & Wolff Ltd.

Yard No.

863

When built

1929

Engines made at

Belfast

By whom made

Harland & Wolff Ltd.

Engine No.

863

When made

1929

Boilers made at

Belfast

By whom made

Harland & Wolff Ltd.

Boiler No.

863

When made

1929

Nominal Horse Power

228

Owners

Rago Shipping Co. Ltd. (A. Weir & Co. Managers) Port belonging to London

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

Manufacturers of Steel

David Colville & Sons Ltd.

(Letter for Record 5.)

Total Heating Surface of Boilers

4360 square feet

Is forced draught fitted

to

Coal or Oil fired

Oil

No. and Description of Boilers

Two single-ended cylindrical multitubular

Working Pressure

180 lbs

Tested by hydraulic pressure to

320 lbs

Date of test 30.4.29

No. of Certificate

934

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

✓

No. and Description of safety valves to each boiler Two spring loaded high-lift

Area of each set of valves per boiler

per Rule  $\frac{2}{3}$  of  $13.77 \square = 9.18 \square$   
as fitted  $9.82 \square$

Pressure to which they are adjusted

180 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

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

open ledge

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

14'-6"

mean Length

11'-0"

Shell plates: Material

Steel

Tensile strength

28-32 tons

Thickness

1 1/4"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

and double

long. seams

Wedge d.b.s.

Diameter of rivet holes in

circ. seams

1 5/16"

Pitch of rivets

3.63"

Percentage of strength of circ. end seams

plate 63.8  
rivets 48.9

Percentage of strength of circ. intermediate seam

plate ✓  
rivets ✓

Percentage of strength of longitudinal joint

plate 85.4  
rivets 90.8  
combined 88.96

Working pressure of shell by Rules

189.5 lbs

Thickness of butt straps

outer 1 5/16"  
inner 1 3/8"

No. and Description of Furnaces in each Boiler

Three Morrison

30f.

Material

Steel

Tensile strength

26-30 tons

Smallest outside diameter

41 5/8"

Length of plain part

top  
bottom

Thickness of plates

9/16"

Description of longitudinal joint

weld

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

✓

Working pressure of furnace by Rules

196 lbs

End plates in steam space: Material

Steel

Tensile strength

26-30 tons

Thickness

1 1/4"

Pitch of stays 20 1/2" x 20 1/2"

How are stays secured

screwed into end plates, double nuts and washers

Working pressure by Rules

185 lbs

Tube plates: Material

front Steel  
back Steel

Tensile strength

26-30 tons

Thickness

7/8"

Mean pitch of stay tubes in nests

8 3/8"

Pitch across wide water spaces

14 1/4"

Working pressure

front 187 lbs  
back 225 lbs

Girders to combustion chamber tops: Material

Steel

Tensile strength

28-32 tons

Depth and thickness of girder

at centre

9'-1 3/4"

Length as per Rule

33"

Distance apart

10 1/4"

No. and pitch of stays

in each

three 8"

Working pressure by Rules

199 lbs

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons

Thickness: Sides

3/4"

Back

1/2"

Top

3/4"

Bottom

3/4"

Pitch of stays to ditto: Sides

9 3/4" x 8"

Back

9 3/8" x 8 1/4"

Top

10 1/4" x 8"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

212 lbs

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons

Thickness

7/8"

Lower back plate: Material

Steel

Tensile strength

26-30 tons

Thickness

1 3/16"

Pitch of stays at wide water space

13 1/4" x 8 1/4"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

220 lbs

Main stays: Material

Steel

Tensile strength

28-32 tons

Diameter

At body of stay,  
or  
Over threads

3 1/4"

No. of threads per inch

FIVE

Area supported by each stay

420.25

Working pressure by Rules

186 lbs

Screw stays: Material

Steel

Tensile strength

26-30 tons

Diameter

At turned off part,  
or  
Over threads

1 5/8"

1 3/4"

No. of threads per inch

TEN

Area supported by each stay

77.34



Lloyd's Register Foundation

Working pressure by Rules 197400" Are the stays drilled at the outer ends *no* - Margin stays: Diameter <sup>At turned off part,</sup> <sub>or</sub>  $1\frac{3}{4}" 1\frac{7}{8}" 2"$   
 No. of threads per inch *TEN* - Area supported by each stay *93.30"* Working pressure by Rules 194400"  
 Tubes: Material *rough iron* - External diameter <sup>Plain</sup>  $3\frac{1}{2}"$  <sub>Stay</sub>  $3\frac{1}{4}"$  Thickness <sup>No. 7 W.G.</sup>  $\frac{1}{4}" \frac{5}{16}" \frac{3}{8}"$  No. of threads per inch *TEN*  
 Pitch of tubes  $4\frac{1}{2}" \times 4\frac{3}{8}"$  Working pressure by Rules *plain 300400" stay 306400"* Manhole compensation: Size of opening in  
 shell plate  $16" \times 12"$  Section of compensating ring  $36" \times 22" \times 1\frac{1}{8}"$  double No. of rivets and diameter of rivet holes  $28 - 1\frac{1}{8}"$   
 Outer row rivet pitch at ends  $8"$  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 <sup>Plate</sup> <sub>Rivets</sub>  
 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 <sup>Tubes</sup> <sub>Steel castings</sub>  
 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 casing gear Working pressure as per  
 Rules Pressure to which the safety valves are adjusted Hydraulic test pressure:  
 tubes, 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 HARELAND AND GOULD, LIMITED. Manufacturer.  
*W. E. Hebeck*

Dates of Survey <sup>During progress of work in shops -</sup> *1929 Jan 1 22 Feb 8 13 22 26 28* Are the approved plans of boiler and superheater forwarded herewith *Yes*  
<sub>while building</sub> <sup>During erection on board vessel - - -</sup> *Mar 12 20 Apr 5 30 May 3 27* (If not state date of approval.)  
 Total No. of visits *13*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)  
*These boilers were constructed under special survey to an approved design. The materials & workmanship are good. They were subjected to hydraulic test in accordance with the rules, and were efficiently fastened on board the vessel. The safety valves were adjusted to the working pressure under steam.*

Survey Fee ... .. £ *See Survey Report* When applied for, 192  
 Travelling Expenses (if any) £ : : : When received, 192  
*R. Lee Ames*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *Jun 7 JUN 1929*  
 Assigned *See Report attached*

