

REPORT ON BOILERS.

No. 10271

Received at London Office JUL 17 1937

Date of writing Report 5th July 1937 When handed in at Local Office 192

Port of Copenhagen

No. in Survey held at

Nalborg and Copenhagen

Date, First Survey 9th Decemr 1936Last Survey 15th July 1937

Reg. Book.

on the *Skul Tjern Torin Motor Tanker**REGINA*

(Number of Visits 27)

Gross 9545.16
Tons Net 5695.13

Master

Built at

Copenhagen

By whom built

A/S Burmeister & Wain's

Yard No.

625

When built 1937

Engines made at

Copenhagen

By whom made

A/S Burmeister & Wain's

Engine No.

When made 1937

Boilers made at

Nalborg

By whom made

Nalborg Værft A/S

Boiler No.

181

When made 1937

Nominal Horse Power for Fu 188.7

Owners

Hansen. Tøngem.

Port belonging to

Kristiansand

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

FRONT & BACK ENDS: Colvilles Limited, Glasgow - REMAINING PLATES: Appleby - Frodingham
Shell Co Ltd, Southampton - FURNACES: The Brown & Forth Works Co Ltd.

Manufacturers of Steel

MAIN STAYS & SCREW STAYS: The United Steel Company Ltd, Sheffield.

(Letter for Record S.)

Total Heating Surface of Boilers

2 x 1415 sq ft = 2830 sq ft 2 x 131.75 sq ft = 263.5 sq ft forced draught fitted

Coal or Oil fired oil fired

No. and Description of Boilers

Two off single ended return multitubular

Working Pressure

180 lb/sq in

Tested by hydraulic pressure to

320 lb/sq in

Date of test 7.4.1937

No. of Certificate

601

Can each boiler be worked separately

yes

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

2 off directly spring loaded

Area of each set of valves per boiler

per Rule

9.60

as fitted

Pressure to which they are adjusted

180 lb/sq in

Are they fitted with easing gear

yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

No main boiler fitted.

Smallest distance between boilers or uptakes and bunkers or woodwork

No bunker or wood.

Is oil fuel carried in the double bottom under boilers

No.

Smallest distance between shell of boiler and tank top plating

The boiler are placed on main deck

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

11' 5" 3/4

Length

3165 1/4"

Shell plates: Material

Jensen M. Steel

Tensile strength

29.6-30.5 Tons/sq in

Thickness

24 3/4"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end lap joint

long. seams

double butt strap

Diameter of rivet holes in

circ. seams

27 3/4"

long. seams

26 3/4"

Pitch of rivets

85.5 3/4"

Percentage of strength of circ. end seams

plate

68.42

rivets

Percentage of strength of circ. intermediate seam

plate

85.52

Percentage of strength of longitudinal joint

plate

85.52

rivets

Working pressure of shell by Rules

13.11 kg/cm²

186.4 lb/sq in

Thickness of butt straps

outer

24 3/4"

inner

24 3/4"

No. and Description of Furnaces in each Boiler

Two off corrugated, Morisons type

Material

Jensen Martin Steel

Tensile strength

28.3-30.0 Tons/sq in

Smallest outside diameter

997 3/4"

Length of plain part

top

13.5 3/4"

bottom

Thickness of plates

Description of longitudinal joint

V

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

V

Working pressure of furnace by Rules

13.7 kg/cm²

End plates in steam space: Material

Jensen M. Steel

Tensile strength

27.6-29.3 Tons/sq in

Thickness

25 3/4"

Pitch of stays

432 3/4" x 355 3/4"

How are stays secured

Secured in both plates, nuts in and outside

Working pressure by Rules

12.9 kg/cm²

Tube plates: Material

front Jensen Martin Steel

back Jensen Martin Steel

Tensile strength

27.6-29.3 Tons/sq in

Thickness

20 3/4"

Mean pitch of stay tubes in nests

90.2 3/4"

Pitch across wide water spaces

355 3/4"

Working pressure

front

16.4 kg/cm²

Girders to combustion chamber tops: Material

Jensen M. Steel

Tensile strength

31.3 Tons/sq in

Depth and thickness of girder

at centre

215 3/4" - 219 3/4" - 38 3/4"

Length as per Rule

744 3/4"

Distance apart

216 3/4"

No. and pitch of stays

in each

3 off 1 1/2" - 180 3/4"

Working pressure by Rules

16.1 kg/cm²

Combustion chamber plates: Material

Jensen M. Steel

Tensile strength

26.7-28.1 Tons/sq in

Thickness

Sides

16 3/4"

Pitch of stays to ditto

Sides

180 3/4" x 216 3/4"

Back

196 3/4" x 205 3/4"

Top

180 3/4" x 216 3/4"

Are stays fitted with nuts or riveted over

outer row: nuts in and outside

Working pressure by Rules

BACK 15.5 kg/cm²

Front plate at bottom: Material

Jensen M. Steel

Tensile strength

27.6-29.3 Tons/sq in

Thickness

25 3/4"

Pitch of stays at wide water space

alpha = 444 3/4"

Are stays fitted with nuts or riveted over

Secured in both plates, nuts in and outside

Working Pressure

22.4 kg/cm²

Main stays: Material

Jensen M. Steel

Diameter

At body of stay,

2 3/4"

Over threads

3" - 2 3/4"

No. of threads per inch

11

Area supported by each stay

153360 3/4" ²

Working pressure by Rules

16.4 kg/cm²

Screw stays: Material

Jensen M. Steel

Tensile strength

27.6-29.3 Tons/sq in

Thickness

1 1/2" - 27.21 Tons/sq in

Diameter

At turned off part,

1 1/2"

Over threads

No. of threads per inch

11

Area supported by each stay

40180 3/4" ²

Lloyd's Register

Foundation

003659-003670-0036

Working pressure by Rules 14.1 kg/cm^2 Are the stays drilled at the outer ends *No* Margin stays: Diameter $\begin{cases} \text{At turned off part, } 1\frac{3}{4}'' \\ \text{Over threads } 1\frac{3}{4}'' \end{cases}$

No. of threads per inch *11* Area supported by each stay $56580 \frac{7}{4}$ Working pressure by Rules 14.6 kg/cm^2

Tubes; Material *Swedish Steel* External diameter $\begin{cases} \text{Plain } 2\frac{1}{2}'' \\ \text{Stay } 2\frac{1}{2}'' \end{cases}$ Thickness $\frac{3}{8}''$ No. of threads per inch *11*

Pitch of tubes $89\frac{7}{4} \times 91\frac{7}{4}$ Working pressure by Rules $230 \text{ lbs per sq in}$ Manhole compensation: Size of opening in shell plate $305\frac{7}{4} \times 405\frac{7}{4}$ Section of compensating ring *flat* No. of rivets and diameter of rivet holes $48 \text{ at } 26\frac{7}{4}$

Outer row rivet pitch at ends $179\frac{7}{4}$ Depth of flange if manhole flanged $90\frac{7}{4}$ Steam Dome: Material *✓*

Tensile strength *✓* Thickness of shell *✓* Description of longitudinal joint *✓*

Diameter of rivet holes *✓* Pitch of rivets *✓* Percentage of strength of joint $\begin{cases} \text{Plate } \checkmark \\ \text{Rivets } \checkmark \end{cases}$

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 $\begin{cases} \text{Tubes } \checkmark \\ \text{Steel castings } \checkmark \end{cases}$

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 *✓*, 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 23 inclusive for boilers been complied with *Yes*

The foregoing is a description,
BURMEISTER & WAIN'S MASKIN-OG SKIBSBYGGERI
Manufacturer.

Dates of Survey $\begin{cases} \text{During progress of work in shops - } 1936: 5/12 - 7/12 - 9/12 - 11/12 - 18/12 - 21/12 \\ \text{while building } 1937: 12/1 - 18/2 - 29/2 - 23/2 - 2/3 - 3/3 - 7/3 - 18/3 - 29/3 - 23/3 - 7/4 \end{cases}$ Are the approved plans of boiler and superheater forwarded herewith *No - 8/6-36* (If not state date of approval.)

During erection on board vessel - - - $24/5 - 1/6 - 9/6 - 11/6 - 12/6 - 21/6 - 23/6 - 25/6 - 26/6 - 1/7$ Total No. of visits *27*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been built under Special Survey by Messrs Stalborg Værft & and installed on board the vessel by Messrs Burmeister & Wain's Maskin-og Skibsbysggeri, Copenhagen, in accordance with the requirements of the Rules, the approved plan and the Secretary's letter E dated 8th June 1936. The material has been tested as required by the Rules as per certificates produced and the workmanship is good.*

Survey Fee ... *422.69* When applied for, *13.7* 1937
Travelling Expenses (if any) *274.00* When received, *28.9* 1937

P. Langkilde Jensen
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 27 JUL 1937*
Assigned *See F.E. mchey rpt.*