

REPORT ON BOILERS.

No. 12. 305

Received at London Office

FEB -7 1939

Date of writing Report

192

When handed in at Local Office

6. 2. 1939

Port of Belfast

No. in Survey held at
Reg. Book.

Belfast

Date First Survey

Last Survey

192

on the

Single screw Motor Tanker "CAIRNDALE"

(Number of Visits)

Tons

Gross 8128.85
Net 4826.32

Master

Built at

Belfast

By whom built

Harland & Wolff

Yard No. 1014

When built 1939

Engines made at

Glasgow

By whom made

Harland & Wolff

Engine No. 1014

When made 1939

Boilers made at

Belfast

By whom made

Harland & Wolff

Boiler No. 1014

When made 1939

Nominal Horse Power

502

Owners

Admiralty

Port belonging to

London

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Colvilles & Co.

(Letter for Record S)

Total Heating Surface of Boilers

2805 2473

Is forced draught fitted

Yes

Oil fired or Gas

No. and Description of Boilers

One single ended

Working Pressure 180 lbs

Tested by hydraulic pressure to

320 lbs

Date of test

7.10.38

No. of Certificate

1052

Can each boiler be worked separately

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

One 3" C.S. double opening Imp. H.L.

Area of each set of valves per boiler

per Rule

8" 2"

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

Smallest distance between shell of boiler and tank top plating

Is the bottom of the boiler insulated

Largest internal dia. of boilers

14'-6"

Length

11'-6"

Shell plates: Material

S

Tensile strength 29/33 tons

Thickness

1 1/4"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end

D.R.

long. seams

T.R.

Diameter of rivet holes in

circ. seams

1 7/32"

Pitch of rivets

3.127

8.5

Percentage of strength of circ. end seams

plate 61.

rivets 50.8

Percentage of strength of circ. intermediate seam

plate 55.67

rivets

Percentage of strength of longitudinal joint

plate 55.67

rivets 57.

combined 55.7

Working pressure of shell by Rules

184 lbs

Thickness of butt straps

outer 29/32"

inner 1 1/32"

No. and Description of Furnaces in each Boiler

3 Morrison

Material

S.

Tensile strength

26/30 tons

Smallest outside diameter

3'-7 1/8"

Length of plain part

top

bottom

Thickness of plates

crown 9/16"

bottom

Description of longitudinal joint

Weld

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

Working pressure of furnace by Rules

189 lbs

End plates in steam space: Material

S

Tensile strength

26/30 tons

Thickness

1 5/8"

Pitch of stays 25"

How are stays secured

Double nuts & washers

Working pressure by Rules

181 lbs

Tube plates: Material

front S

back

Tensile strength

26/30 tons

Thickness

1 3/4"

Working pressure

front 205 lbs

back 348

Mean pitch of stay tubes in nests

8'-2 1/2"

Pitch across wide water spaces

14"

Tensile strength

28/32 tons

Depth and thickness of girder

Girders to combustion chamber tops: Material

S

Distance apart

10 1/4"

No. and pitch of stays

at centre

8 3/4" x 1 3/4"

Length as per Rule

2'-9"

Combustion chamber plates: Material

S

in each

3 - 7 7/8"

Working pressure by Rules

201

Tensile strength

26/30 tons

Thickness: Sides

3/4"

Back

3/4"

Top

3/4"

Bottom

7/8"

Pitch of stays to ditto: Sides

7 7/8" x 8 1/2"

Back

7 3/4" x 8 1/2"

Top

10 1/4" x 7 7/8"

Are stays fitted with nuts or riveted over

Nuts on margins only

Working pressure by Rules

196.

Front plate at bottom: Material

S

Tensile strength

26/30 tons

Thickness

7/8"

Thickness

7/8"

Lower back plate: Material

S

Tensile strength

26/30 tons

Are stays fitted with nuts or riveted over

Nuts

Pitch of stays at wide water space

13" x 8 1/2"

Main stays: Material

S

Tensile strength

28/32 tons

Diameter

At body of stay,

or

Over threads

2 3/4"

No. of threads per inch

6

Area supported by each stay

296 sq. in.

Working pressure by Rules

186 lbs

Screw stays: Material

S

Tensile strength

26/30 tons

Area supported by each stay

66.8 sq. in.

Diameter

At turned off part,

or

Over threads

1 1/2"

No. of threads per inch

10

Working pressure by Rules *187.5* Are the stays drilled at the outer ends *Yes* Margin stays: Diameter *At turned off part. 1 3/4"*
 No. of threads per inch *10* Area supported by each stay *88.25"* Working pressure by Rules *205.4*
 Tubes: Material *W.I.* External diameter *Plain 2 3/4"* Thickness *7.44 1/2"* No. of threads per inch *10*
 Pitch of tubes *4 x 3 7/8"* Working pressure by Rules *242.4* Manhole compensation: Size of opening
 shell plate *16 1/2 x 12 1/2"* Section of compensating ring *36.32 x 1 1/8"* No. of rivets and diameter of rivet holes *28 - 1 3/32"*
 Outer row rivet pitch at ends *9"* Depth of flange if manhole flanged *-* Steam Dome: Material
 Tensile strength *4101* Thickness of shell *1 1/8"* Description of longitudinal joint
 Diameter of rivet holes *1 1/8"* Pitch of rivets *1 1/8"* Percentage of strength of joint *Plate Rivets*
 Internal diameter *4101* Working pressure by Rules *242.4* Thickness of crown *1 1/8"* No. and diameter
 stays *4101* Inner radius of crown *242.4* Working pressure by Rules *242.4*
 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 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 *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
 For HARLAND AND WOLFF, LIMITED.
 The foregoing is a correct description,
A. J. Marshall Manufacture
 Secretary

Dates of Survey *During progress of work in shops - -* Are the approved plans of boiler and superheater forwarded herewith *Yes*
 while building *During erection on board vessel - -* (If not state date of approval.)
 Total No. of visits

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
This boiler was constructed under special survey in accordance with the approved plan & tested by hydraulic pressure in accordance with the Rules. It was installed & fastened on the Main deck in the Main engine room. The safety valves were adjusted under steam, accumulator oil. The workmanship & materials are good and the boiler in my opinion is eligible for use on a classed vessel.

Survey Fee £ *16* : 14 :
 Travelling Expenses (if any) £ : :
See survey report
 When applied for, 192
 When received, 192

Charles H. Hunter.
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned *See 1st mach rll*