

REPORT ON BOILERS.

No. 32855

Received at London Office

APR 25 1940

Date of writing Report

192

When handed in at Local Office

24 APR 1940

Port of

SUNDERLAND.

No. in Survey held at

SUNDERLAND.

Date, First Survey

Last Survey 20th Apr 1940

(Number of Visits

Gross 5173

Tons Net 2980

on the

SS.

HARPAEUS

Built at

Sunderland

By whom built

Barton & Son, Ltd. Yard No. 282 When built 1940

Engines made at

Sunderland

By whom made

H.E. Marine Eng. Co. (1938) Ltd Engine No. 2952 When made 1940

Boilers made at

do.

By whom made

do.

Boiler No.

do.

When made do.

Horse Power

470

Owners

J. E. Harrison, Ltd

Port belonging to

London

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Steel Company of Scotland

(Letter for Record 2)

Total Heating Surface of Boilers

1682 $\frac{1}{2}$

Is forced draught fitted

yes

Coal or Oil fired either

No. and Description of Boilers

1. Single Ended Cylindrical

Working Pressure 220 lbs

Hydraulic test pressure

380 lbs

Date of test 31/1/40

No. of Certificate 4320

Can each boiler be worked separately yes

Area of Firegrate in each Boiler

44 $\frac{1}{2}$

No. and Description of safety valves to each boiler

2. Improved High Lift

Area of each set of valves per boiler

per Rule 9.09 $\frac{1}{2}$ as fitted 4.8 $\frac{1}{2}$

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

Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating

2'-6"

Is the bottom of the boiler insulated yes

Largest internal dia. of boilers

12'-9 $\frac{1}{32}$ "

Length

11'-6"

Shell plates: Material steel

Tensile strength 29/33 tons/sq in

Thickness

1 $\frac{15}{64}$ "

Are the shell plates welded or flanged

Description of riveting: circ. seams

end D.R.L.

Long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams 1 $\frac{9}{32}$ "long. seams 1 $\frac{9}{32}$ "

Pitch of rivets

3 $\frac{3}{4}$ "

Percentage of strength of circ. end seams

plate 65.8

rivets 43.8

Percentage of strength of circ. intermediate seam

plate

Percentage of strength of longitudinal joint

plate 85.76

rivets 86.36

combined 88.79

Working pressure of shell by Rules 220.9 lbs

Thickness of butt straps

outer 15/16"

inner 1/16"

No. and Description of Furnaces in each Boiler

3 Dighton, Gourlay-Stephen makers.

Material

steel

Tensile strength 26/30 tons/sq in

Smallest outside diameter 2'-11 $\frac{15}{32}$ "

Length of plain part

top

bottom

Thickness of plates

crown 39/64"

bottom 39/64"

Description of longitudinal joint weld

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

Working pressure of furnace by Rules 253.1 lbs.

End plates in steam space: Material

steel

Tensile strength 26/30 tons/sq in

Thickness 1 $\frac{5}{32}$ "Pitch of stays 16 $\frac{1}{2}$ " x 16 $\frac{1}{4}$ "

How are stays secured

double nuts fitted

Working pressure by Rules 231 lbs.

End plates: Material

front steel

back steel

Tensile strength 26/30 tons/sq in

Thickness 7/8"

13/16"

Can pitch of stay tubes in nests

9.75" 9.89"

Pitch across wide water spaces

14"

Working pressure

front 223 lbs.

back 242 lbs.

Orders to combustion chamber tops: Material

steel

Tensile strength 29/33 tons/sq in

Depth and thickness of girder

centre

9/8", 2"

Length as per Rule

3 $\frac{1}{2}$ "

Distance apart

11 $\frac{3}{16}$ "

No. and pitch of stays

each

3, 7 $\frac{1}{2}$ "

Working pressure by Rules

226 lbs.

Combustion chamber plates: Material steel

Tensile strength 26/30 tons/sq in

Thickness: Sides 25/32"

Back 25/32"

Top 25/32"

Bottom 25/32"

Pitch of stays to ditto: Sides

9 $\frac{7}{8}$ " x 9 $\frac{1}{16}$ "Back 9 $\frac{3}{4}$ " x 9 $\frac{1}{2}$ "Top 11 $\frac{13}{16}$ " x 7 $\frac{1}{2}$ "

Are stays fitted with nuts or riveted over nuts fitted

Working pressure by Rules

221 lbs.

Front plate at bottom: Material steel

Tensile strength 26/30 tons/sq in

Thickness

7/8"

Lower back plate: Material steel

Tensile strength 26/30 tons/sq in

Thickness 15/16"

Pitch of stays at wide water space

14 $\frac{3}{4}$ " x 9 $\frac{1}{2}$ "

Are stays fitted with nuts or riveted over

nuts fitted

Working Pressure

225 lbs.

Main stays: Material steel

Tensile strength 28/32 tons/sq in

Diameter

At body of stay, or Over threads 2 $\frac{5}{8}$ "

3"

No. of threads per inch

6

Area supported by each stay 16 $\frac{1}{2}$ " x 16 $\frac{1}{4}$ "

Working pressure by Rules

221 lbs.

Screw stays: Material Tented W.I.

Tensile strength 21 $\frac{1}{2}$ tons/sq in

Diameter

At turned off part, or Over threads 2"

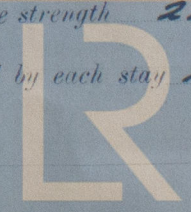
2"

No. of threads per inch

9

Area supported by each stay 10 $\frac{1}{8}$ " x 9 $\frac{1}{2}$ "

Register of Shipping



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143-0016

Working pressure by Rules 258 lb. Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 2 1/8", 2 1/4"
 No. of threads per inch 9 Area supported by each stay 11 7/8" x 9 1/2" Working pressure by Rules 251 lb.
 Tubes: Material W.Z. External diameter { Plain 3" Thickness { 8 W.G. No. of threads per inch 9
 Pitch of tubes 4 1/4" x 4 1/8" Working pressure by Rules 225 lb. Manhole compensation: Size of opening 1 3/32"
 shell plate 20" x 16" Section of compensating ring 22 1/2" x 1 1/4" No. of rivets and diameter of rivet holes 32
 Outer row rivet pitch at ends 10" Depth of flange if manhole flanged 3 7/8" 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 — 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 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 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 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 NORTH EASTERN MARINE ENGINEERING CO. (1938) LTD.
 The foregoing is a correct description,

John Smith Manufacture
 RESIDENT MANAGER

Dates of Survey { During progress of work in shops - - } Please see Rpt 4 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 —

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

This boiler has been constructed under Special Survey in accordance with the approved plans, Secretary's letters and the requirements of the Rules. Workmanship and materials are good. In recommendation please see Rpt 4.

L.R. Horne

Survey Fee ... Please see Rpt 4 When applied for, 102
 Travelling Expenses (if any) Rpt 4 When received, 102

Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute

TUE. 30 APR 1940

Assigned

See minute on

in Rpt



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