

## REPORT ON BOILERS.

No. 33270

Received at London Office

19 DEC 1941

Date of writing Report

192

When handed in at Local Office

11 DEC 1941

Port of

SUNDERLAND.

No. in Survey held at  
Reg. Book.

SUNDERLAND.

Date, First Survey

Last Survey

9 Dec 1941

on the

S/S EMPIRE HALLEY

(Number of Visits

Gross

7168

Tons

Net

4290

Master

Built at Sunderland

By whom built

J. L. Thompson &amp; Sons, Ltd. Yard No. 612

When built

1934

1941

Engines made at Sunderland

By whom made

N. E. Mar. Eng. Co. (1938), Ltd.

Engine No. 4008

When made

1934

1941

Boilers made at

do.

By whom made

do.

Boiler No. do.

When made

do.

Nominal Horse Power

506

Owners

W. I. Gould &amp; Co. Ltd.

Port belonging to

Sunderland

MULTITUBULAR BOILERS ~~MAIN~~, AUXILIARY, OR ~~DONKEY~~.

Manufacturers of Steel

Appley Fordingham Steel Co.

(Letter for Record

S

Total Heating Surface of Boilers

1682 sq

Is forced draught fitted

yes

Coal or Oil fired

coal

No. and Description of Boilers

1. Single ended cylindrical.

Working Pressure

220 lb.

Tested by hydraulic pressure to

380 lb.

Date of test

17/10/41

No. of Certificate

4381

Can each boiler be worked separately

yes

Area of Firegrate in each Boiler

44 sq

No. and Description of safety valves to each boiler

2 direct spring

Area of each set of valves per boiler

per Rule

9.1 sq

as fitted

9.8 sq

Pressure to which they are adjusted

220 lb.

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

8'-0"

Is oil fuel carried in the double bottom under boilers

no

Smallest distance between shell of boiler and tank top plating

2'-3"

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

12'-9 1/2"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength

29/33

Thickness

1 5/16"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end

D.R.L.

long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams

long. seams

1 9/32"

Pitch of rivets

3 3/4"

9"

Percentage of strength of circ. end seams

plate

65.8

rivets

43.8

Percentage of strength of circ. intermediate seam

plate

—

circ. —

Percentage of strength of longitudinal joint

plate

85.76

rivets

86.36

combined

88.79

Working pressure of shell by Rules

220.9 lb.

Thickness of butt straps

outer

15/16"

inner

1 1/16"

No. and Description of Furnaces in each Boiler

3 alighten. Stephen Jursley 220 lb.

Material

Steel

Tensile strength

26/30

Smallest outside diameter

2'-11 1/32"

Length of plain part

top

—

bottom

—

Thickness of plates

crown

35/64"

bottom

—

Description of longitudinal joint

weld

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

Working pressure of furnace by Rules

224 lb.

End plates in steam space: Material

Steel

Tensile strength

26/30

Thickness

1 5/32"

Pitch of stays

16 1/2" x 16 1/4"

How are stays secured

double nuts

Working pressure by Rules

231 lb.

Tube plates: Material

front

Steel

back

Steel

Tensile strength

26/30

Thickness

7/8"

13/16"

Mean pitch of stay tubes in nests

10 1/4"

8.83

Pitch across wide water spaces

14" x 7 3/4"

Working pressure

front

250 lb.

back

225 lb.

Girders to combustion chamber tops: Material

Steel

Tensile strength

29/33

Depth and thickness of girder

at centre

9 1/8" x 2

Length as per Rule

3 1/2"

Distance apart

11 13/16"

No. and pitch of stays

in each

3 at 7 1/2"

Working pressure by Rules

226 lb.

Combustion chamber plates: Material

Steel

Tensile strength

26/30

Thickness: Sides

25/32"

Back

25/32"

Top

25/32"

Bottom

25/32"

Pitch of stays to ditto: Sides

9 1/8" x 9 13/16"

Back

10 1/2" x 9 1/4"

Top

11 13/16" x 7 1/2"

Are stays fitted with nuts or riveted over

Nuts fitted

Working pressure by Rules

220 lb.

Front plate at bottom: Material

Steel

Tensile strength

26/30

Thickness

7/8"

Lower back plate: Material

Steel

Tensile strength

26/30

Thickness

15/16"

Pitch of stays at wide water space

15 1/4" x 9 1/4"

Are stays fitted with nuts or riveted over

Nuts fitted

Working Pressure

225 lb.

Main stays: Material

Steel

Tensile strength

28/32

Diameter

At body of stay,

2 5/8"

Over threads

3"

No. of threads per inch

6

Area supported by each stay

16 1/2" x 16 1/4"

Working pressure by Rules

221 lb.

Screw stays: Material

Steel

Tensile strength

26/30

Diameter

At turned off part,

1 7/8"

Over threads

No. of threads per inch

9

Area supported by each stay

10 1/2" x 9 1/4"

002435-002441-0085



Working pressure by Rules 221 lb. Are the stays drilled at the outer ends no Margin stays: Diameter <sup>At turned off part,</sup> 2" <sub>or</sub> Over threads

No. of threads per inch 9 Area supported by each stay 12 1/8" x 9 1/4" Working pressure by Rules 221 lb.

Tubes: Material Steel External diameter <sup>Plain</sup> 2 1/2" Thickness <sup>8. W. G.</sup> 1/2", 7/16", 3/8", 5/16" No. of threads per inch 9

Pitch of tubes 3 7/8" x 3 3/4" Working pressure by Rules 226 lb. Manhole compensation: Size of opening in End shell plate 16" x 12" Section of compensating ring — No. of rivets and diameter of rivet holes —

Outer row rivet pitch at ends — Depth of flange if manhole flanged 3 3/4" Steam Dome: Material —

Tensile strength — Thickness of shell — Description of longitudinal joint —

Diameter of rivet holes — Pitch of rivets — Percentage of strength of joint <sup>Plate</sup> — <sub>Rivets</sub> —

Internal diameter — Working pressure by Rules — Thickness of crown — No. and diameter of stays —

How connected to shell — Inner radius of crown — Working pressure by Rules —

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 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 yes.

THE NORTH EASTERN MARINE ENGINEERING CO. (1988) LTD.  
The foregoing is a correct description,

J. H. Hume Manufacturer,  
RESIDENT MANAGER.

Dates of Survey <sup>During progress of work in shops --</sup> Please see Rpt 4 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

<sup>while building</sup> <sup>During erection on board vessel ---</sup> 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 & materials are good. For recommendation see Rpt 4.*

Survey Fee ... £ : : When applied for, 192

Travelling Expenses (if any) £ : : When received, 192

L. R. Hume

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 6 JAN 1942

Assigned

See J. E. Mackay report.



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Foundation