

REPORT ON BOILERS.

FEB 17 1939
No. 97170

Received at London Office

FEB 17 1939

Date of writing Report

10

When handed in at Local Office

16/2/39

Port of

NEWCASTLE-ON-TYNE

No. in
Reg. Book.

Survey held at

Newcastle on Tyne

Date, First Survey

27/7/37

Last Survey

15/2/39

on the

Steel Motor Vessel "BRITISH TENACITY"

(Number of Visits

Gross 8439
Net 4855

Master

Built at Newcastle

By whom built

Swan, Hunter & W. Richardson

Yard No. 1592

When built 1939-2.

Engines made at

Sunderland

By whom made

Wm. Duxford & Sons Ltd

Engine No. 207

When made 1939

Boilers made at

Newcastle

By whom made

Swan Hunter & Wigham Richardson Ltd

Boiler No. 1592

When made 1939

Nominal Horse Power

778.140

Owners

British Tanker Co.

Port belonging to

LONDON

WASTE HEAT $\frac{1}{2}$ OIL FIRED

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

The Steel Coy of Scotland.

(Letter for Record S.

Total Heating Surface of Boilers

2595 sq ft

0.51375 sq ft

Is forced draught fitted

Yes

Coal or Oil fired

oil fired

No. and Description of Boilers

One Single Ended

Working Pressure

150 lb/sq in

Tested by hydraulic pressure to

275 lb

Date of test

9/12/38

No. of Certificate

803

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

Oil fired

No. and Description of safety valves to each boiler

Two - 2 3/4" Cockburn's Improved High Lift Spring loaded

Area of each set of valves per boiler

per Rule

9.85 sq in

as fitted

11.84 "

Pressure to which they are adjusted

150 lb

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 boilers

Smallest distance between boilers or uptakes and bunkers

16"

Is oil fuel carried in the double bottom under boilers

Yes

Smallest distance between shell of boiler and tank top plating

16"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

13' 4 1/2"

Length

11' 6"

Shell plates: Material

Steel

Tensile strength

30 & 31 tons

Thickness

7/8"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end D.R. lap

inter. none

long. seams

T.R. Dile butt straps

Diameter of rivet holes in

circ. seams

1"

long. seams

15/16"

Pitch of rivets

3.24"

6.625"

Percentage of strength of circ. end seams

plate 69.18

rivets 42.41

Percentage of strength of circ. intermediate seam

plate none

rivets none

Percentage of strength of longitudinal joint

plate 85.84

rivets 85.55

combined 88.80

Working pressure of shell by Rules

151 lb

Thickness of butt straps

outer 2 1/32"

inner 2 5/32"

No. and Description of Furnaces in each Boiler

Two at Wings:- Beighton Corrugated

At back centre - plain tube for access

Material

Steel

Tensile strength

26 to 30 tons

Smallest outside diameter

37 3/16"

Length of plain part

top 2' 4"

bottom 2' 4" c.c. bottom

Thickness of plates

crown 13/32"

bottom 5/8" c.c. bottom

Description of longitudinal joint

Furnaces, fire welded

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

none

Working pressure of furnace by Rules

155 lb

End plates in steam space: Material

Steel

Tensile strength

26 to 30 tons

Thickness

1 1/2"

Pitch of stays

18" x 18"

How are stays secured

Dile nuts & washers

Working pressure by Rules

151.5 lb

Tube plates: Material

front Steel

back Steel

Tensile strength

26 to 30 tons

Thickness

7/8"

5/8"

Mean pitch of stay tubes in nests

9.375"

Pitch across wide water spaces

13 1/2" x 7 3/8"

Working pressure

front 159 lb

Girders to combustion chamber tops: Material

Steel

Tensile strength

28-32 tons

Depth and thickness of girder

at centre

7 5/8" x 1 1/4"

Length as per Rule

30 2 1/32"

Distance apart

8 3/4" (max. at Cr.)

No. and pitch of stays

in each

two @ 9 3/8"

Working pressure by Rules

151 lb

Combustion chamber plates: Material

Steel

Tensile strength

26 to 30 tons

Thickness: Sides

5/8"

Back

3 1/4" Wap 23"

Top

5/8"

Bottom

5/8"

Pitch of stays to ditto: Sides

9 1/2" x 9 3/8"

Back

9" x 9" c.c.

Top

9 3/8" x 8 3/4"

Are stays fitted with nuts or riveted over

Working pressure by Rules

152 lb

Front plate at bottom: Material

Steel

Tensile strength

26 to 30 tons

Thickness

7/8"

Lower back plate: Material

Steel

Tensile strength

26 to 30 tons

Thickness

3/4"

Pitch of stays at wide water space

13 1/2" x 9"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

172 lb

Main stays: Material

Steel

Tensile strength

28 to 32 tons

Diameter

two top stays 2 3/4"

Others

2 5/8"

No. of threads per inch

6

Area supported by each stay (18x18) - 4.57 sq in

Working pressure by Rules

155 lb

Screw stays: Material

Steel

Tensile strength

26 to 30 tons

Diameter

At turned off part, 1 1/2"

Over threads

1 5/8"

No. of threads per inch

9

Area supported by each stay (9 3/8 x 8 3/4) - 1.45 sq in

c.c. tops.

Working pressure by Rules 155 lbs Are the stays drilled at the outer ends No Margin stays: Diameter ^{At turned off part.} 1 5/8"
 No. of threads per inch 9 Area supported by each stay (11 1/4 x 9) - 1.73 sq in Working pressure by Rules 152 lbs
 Tubes: Material IRON External diameter ^{Plain} 2 1/2" Thickness ^{10 W.G.} 3/8" + 5/16" No. of threads per inch 9
 Pitch of tubes 3 3/4" x 3 3/4" Working pressure by Rules 229 lbs (min at sides) Manhole compensation: Size of opening in
 shell plate 20" x 16" Section of compensating ring 8 1/4" x 7 1/8" x 2 No. of rivets and diameter of rivet holes 32 of 1 1/4"
 Outer row rivet pitch at ends 8 3/4" Depth of flange if manhole flanged 2 1/2" 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} _____
 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 None Manufacturers of _____
 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 _____ forgings and 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 of _____
 FOR SWAN, HUNTER, & WILKINSON LTD. Manufacturers.

Dates of Survey ^{During progress of} work in shops - - See Mch Report Are the approved plans of boiler and superheater forwarded herewith 20/11/35
 while building ^{During erection on} board vessel - - See Mch Report (If not state date of approval.) for British Fams
 Total No. of visits _____
 No. 1498, etc.

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. British Fams. Nov. Rpt 94/24

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
The Boiler has been constructed under special survey in accordance with the Rules and approved plans, and the materials and workmanship are good.
The Boiler is fitted on top of the oil fuel bunker in the Boiler space forward of the Engine Room, having access from the top platform of the Engine Room.
The Boiler is fitted for burning oil fuel 2-39, flash point above 150°F, under forced draft, and also for waste exhaust gases.
The Safety valves have been adjusted under steam to 150 lbs. and the accumulation test was satisfactory.

Survey Fee ... £ See 7 1/2 Mch. When applied for, See Rpt 4 h. 19
 Travelling Expenses (if any) £ : : When received, 19

A. Watt
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute _____ TUE 28 FEB 1936
 Assigned _____ See Nov. 76. 97170