

WASTE HEAT REPORT ON BOILERS

No. 94275

Received at London Office 12 OCT 1936

9.10.36

Port of NEWCASTLE-ON-TYNE

of writing Report

10

When handed in at Local Office

Date, First Survey 16 Jan 1936

Last Survey 8 Oct 1936

Survey held at Newcastle

Date, First Survey 16 Jan 1936

Last Survey 8 Oct 1936

(Number of Visits)

Gross

8303

Tons

Net

4939

on the Steel Screw Motor Tanker BRITISH ENDURANCE

Built at Newcastle

By whom built Swan Hunter & Wigham Richardson Ltd

Yard No 1500 When built 1936

diameter

Boilers made at Sunderland

By whom made W. Daxford & Sons Ltd

Engine No. 190 When made 1936

Boilers made at Newcastle

By whom made Swan Hunter & Wigham Richardson Ltd

Boiler No. 1500 When made 1936

s and pi

Donkey Boiler 173

Owners British Tanker Co Ltd

Port belonging to London

WASTE HEAT OIL FIRED MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Steel Coy of Scotland

(Letter for Record)

Total Heating Surface of Boilers

2595 sq ft

Is forced draught fitted Yes

Coal or Oil fired Oil fired & waste gas.

No. and Description of Boilers

One S. Ended Cylindrical Multitubular

Working Pressure 150 lbs/sq in

Tested by hydraulic pressure to

275 lbs

Date of test 7/8/36

No. of Certificate 67.5

Can each boiler be worked separately Yes

Area of Firegrate in each Boiler

Oil fired

No. and Description of safety valves to each boiler

2-2 3/4" Improved High Lift Spring loaded

Area of each set of valves per boiler

per Rule

9.85 sq in

as fitted

11.84 sq in

Pressure to which they are adjusted 150 lbs

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 are fitted.

Smallest distance between boilers or uptakes and bunkers or woodwork

16"

Is oil fuel carried in the bunker

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 1/4"

Length 11' 6"

Shell plates: Material Steel

Tensile strength 30/34 tons

Thickness

7/8"

Are the shell plates welded or flanged No

Description of riveting: circ. seams

end DR. lap

inter none

Long. seams

T.R. S. 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

85.84

rivets

85.55

Percentage of strength of longitudinal joint

plate

85.84

rivets

85.55

combined

88.80

Working pressure of shell by Rules 151 lbs.

Thickness of butt straps

outer 21/32"

inner 25/32"

No. and Description of Furnaces in each Boiler

Two at wings - Deighton Corrugated

Material Steel

Tensile strength

26/30 tons

Smallest outside diameter 37 3/16"

Length of plain part

top

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 lbs.

End plates in steam space: Material Steel

Tensile strength

26/30 tons

Thickness 1 1/32"

Pitch of stays 18 x 18"

How are stays secured

Dble nuts & washers

Working pressure by Rules 151.5 lbs.

Tube plates: Material

front Steel

back Steel

Tensile strength

26/30 tons

Thickness

7/8"

Mean pitch of stay tubes in nests

9.375 lbs.

Pitch across wide water spaces 13 1/2" x 7 3/8"

Working pressure

front 159 lbs.

back 156 lbs.

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 21/32"

Distance apart 8 3/4" (max at cr.)

No. and pitch of stays

in each

2 of 9 3/8"

Working pressure by Rules 151 lbs.

Combustion chamber plates: Material Steel

Tensile strength

26/30 tons

Thickness: Sides

5/8"

Back

3/4"

Wings 23/32"

Top

5/8"

Bottom

5/8"

Pitch of stays to ditto: Sides

9 5/8" 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

nuts

Working pressure by Rules 152 lbs.

Front plate at bottom: Material Steel

Tensile strength 26/30 tons

Thickness

7/8"

Lower back plate: Material Steel

Tensile strength

26/30

Thickness

3/4"

Pitch of stays at wide water space

13 1/2" x 9"

Are stays fitted with nuts or riveted over

nuts

Shipping Working Pressure

172 lbs

Main stays: Material Steel

Tensile strength 28/32 tons

Diameter

At body of stay

Two top stays 2 3/4"

Others 2 5/8"

No. of threads per inch

6

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

Working pressure by Rules

155 lbs.

Screw stays: Material Steel

Tensile strength 26/30 tons

Diameter

At turned off part

1 1/2" & 1 5/8"

Over threads

No. of threads per inch

9

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

c.c. tops

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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" or Over threads. 1 5/8"
No. of threads per inch 9 Area supported by each stay (11 1/4 x 9) - 1.73 Working pressure by Rules 152 lbs
Tubes: Material IRON External diameter { Plain 2 1/2 Thickness { 10 W.G. No. of threads per inch 9
Pitch of tubes 3 3/4" x 3 3/4" Working pressure by Rules 229 lbs Manhole compensation: Size of opening
shell plate 20 x 16" Section of compensating ring 8 x 7/8 x 2 No. of rivets and diameter of rivet holes 32 - 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 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 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 Yes

The foregoing is a correct description,
FOR SWAN, HUNTER & WISHART LTD. Manufacturer.
G. F. Sheworth

Dates of Survey { During progress of work in shops - - -
while building { During erection on board vessel - - -
See Machinery Report
Are the approved plans of boiler and superheater forwarded herewith 23/11/35
(If not state date of approval.)
Total No. of visits

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. British Fame. Nav. Rpt. 94124

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

The Boiler has been built under Special Survey in accordance with the 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 Engine Room, having access from the top platform of the Engine Room.
The Boiler is fitted for burning oil fuel 10.36, 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 per sq inch

Survey Fee ... £ 17. 6. 0 When applied for See Machinery Report
Travelling Expenses (if any) £ See Machinery Report When received, 19

A. Watt.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 13 OCT 1935

Assigned

See Machinery Report



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