

REPORT ON BOILERS.

No. 20041

MAR 1 1940

Received at London Office

of writing Report 29-2-1940 When handed in at Local Office 29-2-1940 Port of Leith

in Survey held at Leith

Date, First Survey 4-12-39

Last Survey 24-2-1940

on the S.S. "EMPIRE WARRIOR" ex "BIANCA"

(Number of Visits)

Gross 1306

Net 721

Built at Hamburg

By whom built Hamburg Elbe Schiffbau

Yard No. -

When built 1921

Engines made at Oberhausen

By whom made Gute Hoffnungshütte

Engine No. -

When made 1921

Boilers made at Hamburg

By whom made Deutsche Werft

Boiler No. -

When made 1921

Indicated Horse Power 125

Owners Ministry of Shipping

Port belonging to London

WATER TUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Heating Surface of Boilers 274 m² = 2949 ft²

Is forced draught fitted No

(Letter for Record S)

Coal or Oil fired coal

Description of Boilers Two cylindrical, single ended

Working Pressure 180 lbs/sq. in. 185 lb.

Tested by hydraulic pressure to 250 lbs

Date of test PORT 12-2-40
STAR 13-2-40

No. of Certificate -

Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 37.7 sq. ft. No. and Description of safety valves to each boiler Two spring loaded

Number of each set of valves per boiler per Rule
as fitted 10 sq. in.

Pressure to which they are adjusted 180 lbs/sq. in. Are they fitted with easing gear Yes

Use of donkey boilers, state whether steam from main boilers can enter the donkey boiler Yes

Least distance between boilers or uptakes and bunkers or woodwork BACK OF BOILER TO HOLD 2'-0"
FRONT OF BOILER TO E. ROOM 10'-6"

Is oil fuel carried in the double bottom under boilers No

Least distance between shell of boiler and tank top plating 12"

Is the bottom of the boiler insulated YES

Least internal dia. of boilers 11'-7 3/4"

Length 10'-7 13/16"

Shell plates: Material Steel

Tensile strength Assumed 28/32 Tons

Thickness .95" Are the shell plates welded or flanged No

Description of riveting: circ. seams Double riveted

Seams knitted double butt strap

Diameter of rivet holes in circ. seams 1.142"
long. seams 1.23"

Pitch of rivets 3.71"
9.055"

Percentage of strength of circ. end seams plate 69
rivets 47

Percentage of strength of circ. intermediate seam plate 86
rivets 47

Percentage of strength of longitudinal joint plate 86
combined 93

Working pressure of shell by Rules 181 lbs/sq. in.

Thickness of butt straps outer .787"
inner .787"

No. and Description of Furnaces in each Boiler Two Corrugated

Material Steel

Tensile strength Assumed 26/30 Tons

Smallest outside diameter 41.339" 42.5"

Thickness of plain part top .591"
bottom .591"

Thickness of plates crown .591"
bottom .591"

Description of longitudinal joint Weld

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

Working pressure of furnace by Rules 209 lbs

Plates in steam space: Material Steel

Tensile strength Assumed 26/30 Tons

Thickness .866" Pitch of stays 15.354" x 14.449"

Are stays secured Nuts & riveted washers

Working pressure by Rules 210 lbs

Plates: Material front Steel
back Steel

Tensile strength Assumed 26/30 Tons

Thickness .866"
.827"

Pitch of stay tubes in nests 8.661" x 8.661"

Pitch across wide water spaces 14.252"

Working pressure front 276 lbs
back 266 lbs

Boilers to combustion chamber tops: Material Steel

Tensile strength Assumed 28/32 Tons

Depth and thickness of girder

Centre 7.874" .591" Length as per Rule 2'-4"

Distance apart 7.874"

No. and pitch of stays

Ch 2-7.874"

Working pressure by Rules 214 lbs

Combustion chamber plates: Material Steel

Tensile strength Assumed 26/30 Tons

Thickness: Sides .669" Back .669" Top .669" Bottom .787"

Pitch of stays to ditto: Sides 7.874" x 7.874" Back 7.874" x 7.874" Top 7.874" x 7.874" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 271 lbs

Front plate at bottom: Material Steel

Tensile strength Assumed 26/30 Tons

Thickness .866"

Lower back plate: Material Steel

Tensile strength Assumed 26/30 Tons

Thickness .866"

Pitch of stays at wide water space 14.173"

Are stays fitted with nuts or riveted over Nuts

Working Pressure 249 lbs

Main stays: Material Steel

Tensile strength Assumed 28/32 Tons

Area supported by each stay 221.84 sq. in.

At body of stay, 2.756"

No. of threads per inch -

Screw stays: Material Steel

Tensile strength Assumed 26/30 Tons

At turned off part, 1.625"

No. of threads per inch -

Area supported by each stay 62 sq. in.

REPORT ON BOILERS 1.875

Working pressure by Rules 245 lbs. Are the stays drilled at the outer ends No. Margin stays: Diameter At turned off part, 1.875
or
Over threads

No. of threads per inch ✓ Area supported by each stay ✓ Working pressure by Rules over 250 lbs.

Tubes: Material Steel External diameter Plain 3 1/4" Thickness 3/16" No. of threads per inch ✓

Pitch of tubes 8.661" PLAIN 4.331" Working pressure by Rules over 250 lbs Manhole compensation: Size of open

shell plate 16.536" x 12.599" Section of compensating ring 6.299" wide x 1" thick No. of rivets and diameter of rivet holes 28 - 1.26"

Outer row rivet pitch at ends 5" Depth of flange if manhole flanged ✓ Steam Dome: Material Steel

Tensile strength Assumed 26/30 Tens Thickness of shell .630" Description of longitudinal joint Double riveted lap

Diameter of rivet holes .906 Pitch of rivets 2.913" Percentage of strength of joint Plate 68
Rivets 67

Internal diameter 33.465" Working pressure by Rules over 300 lbs Thickness of crown .630" No. and diam

stays None Inner radius of crown 35.433 Working pressure by Rules 220 lbs

How connected to shell knitted Size of doubling plate under dome ✓ none Diameter of rivet holes and

of rivets in outer row in dome connection to shell 92 rivets .906" dia, 2.835"

Type of Superheater W. Schmidt Manufacturers of ✓ Tubes ✓

Number of elements ✓ Material of tubes Steel Internal diameter and thickness of tubes ✓

Material of headers Steel Tensile strength ✓ Thickness ✓ Can the superheater be shut

the boiler be worked separately yes Is a safety valve fitted to every part of the superheater which can be shut off from the boiler yes

Area of each safety valve 2.07 sq" Are the safety valves fitted with easing gear yes Working pressure

Rules ✓ Pressure to which the safety valves are adjusted 180 lbs/sq" Hydraulic test pre

tubes ✓, castings ✓ and after assembly in place 400 lbs/sq" Are drain cocks or valves

to free the superheater from water where necessary yes

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with ✓

The foregoing is a correct description,

Manuf

Dates of Survey During progress of work in shops - -
while building During erection on board vessel - - -

Are the approved plans of boiler and superheater forwarded herewith
(If not state date of approval.)

Total No. of visits

Is this Boiler a duplicate of a previous case ✓ If so, state Vessel's name and Report No. ✓

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

The above information is forwarded for the consideration of the Committee.
See Report 9.

Survey Fee ... £ See Rpt. 9. When applied for, 19

Travelling Expenses (if any) £ : : When received, 19

J. J. Campbell
Engineer Surveyor to Lloyd's Register of Ships

Committee's Minute TUE. 12 MAR 1940

Assigned Am. 2.40
5.12.39 C.S.
2.5.40 (Spt) 185/16



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