

REPORT ON BOILERS.

n/dlb. 17021

No. 17534

28 OCT 1943

Received at London Office

Date of writing Report 23rd Oct. 1943 When handed in at Local Office 26th Oct. 1943 Port of MiddlesbroughNo. in Survey held at 10143 No. in Reg. Book. 10143 Date, First Survey 14th April Last Survey 20th Oct. 1943

on the

S/S "EMPIRE LAW"

(Number of Visits 12.) Gross 8128 Tons Net 4597

Built at Hawthorn Hill on Tees By whom built Furness Shipbuilding Co. Ltd. Yard No. 357. When built 1944.3

Engines made at West Hartlepool By whom made Richardson Westgarth Engine No. 2741 When made 1944

Boilers made at Hawthorn on Tees By whom made Hawthorn C.E. & Riley Boilers Ltd. Boiler No. 6814 When made 1943

Nominal Horse Power Owners Ministry of War Transport Port belonging to Middlesbrough

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Co. of Scotland Ltd. (Letter for Record 5)

Total Heating Surface of Boilers 2080. 2080 Is forced draught fitted Coal Oil fired

No. and Description of Boilers 1 S.E. multitubular marine Working Pressure 180 lb/sq. in.

Tested by hydraulic pressure to 3204 lb Date of test 20/10/43 No. of Certificate 7096 Can each boiler be worked separately

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 2 1/4" Double Spring High Lift.

Area of each set of valves per boiler (per Rule 6.675 for 144) Pressure to which they are adjusted 185 Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No.

Smallest distance between boilers or uptakes and bunkers or woodwork 3'-6" Is oil fuel carried in the double bottom under boilers Yes

Smallest distance between shell of boiler and tank top plating 18" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 13'-3 1/16" Length 11'-6" Shell plates: Material Steel Tensile strength 29-33

Thickness 13/32" Are the shell plates welded or flanged No Description of riveting: circ. seams (end DR. inter.)

long. seams T.R. D.B.S. Diameter of rivet holes in (circ. seams 1 3/16" long. seams 1 3/16" Pitch of rivets 3-59 9 3/16"

Percentage of strength of circ. end seams (plate 66.9% rivets 44.7%) Percentage of strength of circ. intermediate seam (plate 85.5% rivets 91.85% combined 87.26%)

Percentage of strength of longitudinal joint (plate 71.8% rivets 87.26% combined 87.26%)

Thickness of butt straps (outer 7/8" inner 1") No. and Description of Furnaces in each Boiler 3. Deignia Corrugated.

Material Steel Tensile strength 26-30 Smallest outside diameter 3'-1 1/2"

Length of plain part (top 1' bottom 1') Thickness of plates (crown 1/2" bottom 1/2") Description of longitudinal joint welded.

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

End plates in steam space: Material Steel Tensile strength 26-30 Thickness 1 5/32" Pitch of stays 19" x 17 1/2"

How are stays secured D. nuts & washers. Clear holes thro' end plates & sealing held on outside

Tube plates: Material (front Steel back Steel) Tensile strength 26-30 Thickness 13/16" 1 1/16"

Mean pitch of stay tubes in nests 9 3/8" Pitch across wide water spaces 13 1/2"

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 Depth and thickness of girder

at centre 8 3/8" - 2 @ 13/16" Length as per Rule 2'-8" Distance apart 10" No. and pitch of stays

in each 2 - 10" Combustion chamber plates: Material Steel Tensile strength 26-30 Thickness: Sides 2 1/32" Back 1/16" Top 2 3/32" Bottom 2 1/32"

Pitch of stays to ditto: Sides 10" x 8" Back 10 1/2" x 7 1/2" Top 10" x 10" Are stays fitted with nuts or riveted over

Front plate at bottom: Material Steel Tensile strength 26-30 Thickness 13/16" Lower back plate: Material Steel Tensile strength 26-30 Thickness 27/32"

Pitch of stays at wide water space 15" Are stays fitted with nuts or riveted over

Main stays: Material Steel Tensile strength 28-32

Diameter (At body of stay, or Over threads) 2 7/8" No. of threads per inch 6

Screw stays: Material Tensile strength 26-30

Diameter (At turned off part, or Over threads) 1 3/4" No. of threads per inch 9



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Are the stays drilled at the outer ends No.
Margin stays: Diameter { At turned off part, 1 7/8"
or
Over threads
No. of threads per inch 9
Tubes: Material Stainless Steel External diameter { Plain 2 1/2"
Stay 2 1/2" Thickness { 9. W. 9.
3/8" x 7/16" No. of threads per inch 9
Pitch of tubes 3 3/4" x 3 3/4" Manhole compensation: Size of opening in
shell plate 20 1/2" x 16 1/2" Section of compensating ring 6 1/2" x 1 1/8" No. of rivets and diameter of rivet holes 36 - 1 3/16"
Outer row rivet pitch at ends 8 5/16" Depth of flange if manhole flanged ✓ Steam Dome: Material Steel
Tensile strength _____ Thickness of shell _____ Description of longitudinal joint _____
Diameter of rivet holes _____ Pitch of rivets _____ Percentage of strength of joint { Plate
Internal diameter _____ Thickness of crown _____ Rivets
stays _____ Inner radius of crown _____ No. and diameter of
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 forgings
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 _____
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 _____ For and on behalf of
STOCKTON CHEMICAL ENGINEERS & RILEY BOILERS LTD.
The foregoing is a correct description,
[Signature] Manufacturer.
DIRECTOR.
Dates of Survey { During progress of work in shops - - 1943 April 14, May 12, June 4, 28, July 27,
while building { During erection on board vessel - - 30, Aug. 13, Sept. 3, 27, Oct. 6, 11, 20
Are the approved plans of boiler and superheater forwarded herewith 13/3/43.
(If not state date of approval.)
Total No. of visits 12.

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. Indra. Report No. 17498.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been constructed under
special survey & in accordance with the Rules Requirements & approved plan.
The materials & workmanship are good & on completion the boiler was
hydraulically tested to 320 lbs per sq. in. & found satisfactory.
This boiler is being forwarded to the Furness Shipbuilding Co. Ltd. - Hartlepool
for Richardsons Westgarth Contract No. 2741
This boiler has now been securely fitted on board & examined under working
conditions & found satisfactory.
The SV's adjusted under steam to 185 lbs per sq. in. on completion

Survey Fee ... £ 13 : 18 : 0 } When applied for, 26/10/43.
SUPERVISION
Travelling Expenses (if any) £ 3 : 9 : 6 } When received, 19

[Signature]
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute THURS 27 APR 1944
Assigned See A. machy r/l.