

REPORT ON BOILERS.

No. 36531

Received at London Office 30 SEP 1955 18 NOV 1955

Date of writing Report 19... When handed in at Local Office 29 SEP 1955 Port of Sunderland

No. in Reg. Book 24248 Survey held at Sunderland Date, First Survey 11th JULY 1955 Last Survey 16th SEPTEMBER 1955

On the for. *Queenworth* (ex. *Empire Cetera* - 45) (Number of Visits 8) Tons Gross 2066 Net 1073

Master Built at *Grangemouth* By whom built *Grangemouth Wkshs* Yard No. 449 When built 6-43

Engines made at *Newcastle* By whom made *H.E. Marine Eng Co (1938) Ltd* Engine No. 3059 When made 6-43

Boilers made at *Sunderland* By whom made *George Clark (Sunderland) Ltd* Boiler No. 3317 When made 1955

Nominal Horse Power 135 MN Owners *Walker Gate S.S. Co. Ltd* Port belonging to *Newcastle*

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

Manufacturers of Steel *Calverley Ltd* (Letter for Record)

Total Heating Surface of Boilers 1460 sq ft Is forced draught fitted *yes* Coal or Oil fired *Coal*

No. and Description of Boilers *Single-ended multitubular (Starboard)* Working Pressure 220 lbs

Tested by hydraulic pressure to 380 lbs Date of test 12/9/55 No. of Certificate 4909 Can each boiler be worked separately *yes*

Area of Firegrate in each Boiler 37.5 sq ft No. and Description of safety valves to each boiler *one 2 1/2" Under Spring Safety valves (original valves refitted)*

Area of each set of valves per boiler *per Rule 7.80" as fitted 9.80"* Pressure to which they are adjusted 220 lbs 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 *Ample clearance* Is oil fuel carried in the double bottom under boilers *No*

Smallest distance between shell of boiler and tank top plating *12-3 5/8"* Is the bottom of the boiler insulated *No*

Largest internal dia. of boilers *12-3 5/8"* Length *11'-0"* Shell plates: Material *S.M. Steel* Tensile strength 29-33 TT

Thickness *1 3/16"* Are the shell plates welded or flanged *no* Description of riveting: circ. seams *DR lap* inter. *none*

long. seams *T.R.D.B.S.* Diameter of rivet holes in *1/4"* Pitch of rivets *3 5/8" / 8 3/4"*

Percentage of strength of circ. end seams *plate 66% rivets 44.5%* Percentage of strength of circ. intermediate seam *plate none rivets none*

Percentage of strength of longitudinal joint *plate 85.55% rivets 88.8% combined 88.8%* Working pressure of shell by Rules 220 lbs

Thickness of butt straps *outer 32" inner 1 1/2"* No. and Description of Furnaces in each Boiler *3. 'Beighton' Corrugated*

Material *S.M. Steel* Tensile strength 26-30 TT Smallest outside diameter *21-9 3/32"*

Length of plain part *top 33" bottom 64"* Thickness of plates *crown 33" bottom 64"* Description of longitudinal joint *welded*

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 220 lbs

End plates in steam space: Material *S.M. Steel* Tensile strength 26-30 TT Thickness *1 1/16"* Pitch of stays *15x16"*

Tow are stays secured *Double nuts with washers* Working pressure by Rules 232 lbs

Tube plates: Material *front S.M. Steel back S.M. Steel* Tensile strength *26-30 T.T.* Thickness *1 1/16"*

Lean pitch of stay tubes in nests *9 3/4" x 9 3/4"* Pitch across wide water spaces *14 1/2" x 4 1/2"* Working pressure *front 291 lbs back 290 lbs*

Girders to combustion chamber tops: Material *S.M. Steel* Tensile strength 29-33 TT Depth and thickness of girder *9x1"*

at centre *9x1"* Length as per Rule *32"* Distance apart *8"* No. and pitch of stays *welded*

each *welded* Working pressure by Rules 220 lbs Combustion chamber plates: Material *S.M. Steel*

Tensile strength 26-30 TT Thickness: Sides *25" 32"* Back *25" 32"* Top *25" 32"* Bottom *25" 32"*

Pitch of stays to ditto: Sides *9x10 3/4"* Back *10 5/8" x 9"* Top *—* Are stays fitted with nuts or riveted over *Backs welded C.C. sides - nuts inside caulked at shell*

Working pressure by Rules 220 lbs 222 lbs Front plate at bottom: Material *S.M. Steel* Tensile strength 26-30 TT

Thickness *1 1/16"* Lower back plate: Material *S.M. Steel* Tensile strength 26-30 TT Thickness *1 1/16"*

Pitch of stays at wide water space *14 1/2" x 9"* Are stays fitted with nuts or riveted over *welded*

Working pressure 322 Main stays: Material *S.M. Steel* Tensile strength 28-30 TT

Diameter *At body of stay 2 3/4" Over threads 2 1/2"* No. of threads per inch *16* Area supported by each stay *15x16"*

Working pressure by Rules 232 Screw stays: Material *S.M. Steel* Tensile strength 26-30 TT

Diameter *At turned off part 1 1/8" sides severed* No. of threads per inch *9* Area supported by each stay *10 3/4" x 9" Sides back, 10.625 x 9. 10 1/8" x 9 wrap*

welded 1 3/4" 1 1/8" 2 1/8" backs

Working pressure by Rules 220.4 lbo Are the stays drilled at the outer ends no Margin stays: Diameter 1 1/8" margins
No. of threads per inch 9 Area supported by each stay 113.04 - 145.75 sq" Working pressure by Rules 224 - 226 lbo
Tubes: Material Steel External diameter 3" Thickness 3/8" + 5/16" No. of threads per inch 9
Pitch of tubes 4 1/4" + 4 3/8" Working pressure by Rules 251 - 235 lbo Manhole compensation: Size of opening in 34 - 12" dia
shell plate 20 1/2" x 16 1/2" Section of compensating ring 10" x 1 1/4" No. of rivets and diameter of rivet holes 34 - 12" dia
Outer row rivet pitch at ends 10 1/2" Depth of flange if manhole flanged 3 1/2" Steam Dome: Material Steel
Tensile strength 40,000 Thickness of shell 3/8" Description of longitudinal joint Butt
Diameter of rivet holes 3/16" Pitch of rivets 3" Percentage of strength of joint 100
Internal diameter 20" Working pressure by Rules 251 - 235 lbo Thickness of crown 3/8" No. and diameter of rivets 34 - 12" dia
stays 4 Inner radius of crown 10" Working pressure by Rules 251 - 235 lbo Diameter of rivet holes and pitch 3/16" x 3"
How connected to shell Welded Size of doubling plate under dome 10" x 1 1/4"
of rivets in outer row in dome connection to shell 34
Type of Superheater Water tube Manufacturers of George Clark (Sunderland) Ltd.
Number of elements 1 Material of tubes Steel Internal diameter and thickness of tubes 3" x 3/8"
Material of headers Steel Tensile strength 40,000 Thickness 3/8" Can the superheater be shut off no
the boiler be worked separately no Is a safety valve fitted to every part of the superheater which can be shut off from the boiler no
Area of each safety valve 10 sq in Are the safety valves fitted with easing gear no Working pressure as 224 lbo
Rules 224 lbo Pressure to which the safety valves are adjusted 224 lbo Hydraulic test pressure 275 lbo
tubes 4 forgings and castings 4 and after assembly in place 275 lbo Are drain cocks no
valves fitted to free the superheater from water where necessary no
Have all the requirements of Sections appropriate for boilers been complied with yes
The foregoing is a correct description, yes
MANAGING DIRECTOR

Dates of Survey During progress of work in shops - 11.2.55 Are the approved plans of boiler and superheater forwarded herewith yes
while building During erection on board vessel - 11.2.55 (If not state date of approval.)
Total No. of visits 8

Is this Boiler a duplicate of a previous case no If so, state Vessel's name and Report No. replaces for S. Queenworth

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been constructed under Special Survey, in accordance with the requirements of the rules, the Secretary's letter, and the approved plans.
The materials & workmanship are good.
On completion the boiler was examined under hydraulic test of 380 lbo. & found sound & tight.
It has been despatched to the River Tyne to be installed in the vessel.

Newcastle, 4/11/55.
This boiler has been installed in the ship, tested under working conditions and safety valves adjusted to the above stated pressure, all in accordance with the requirements of the Rules and to my satisfaction.

Survey Fee £ 18 - - When applied for 29 SEP 1955
Travelling Expenses (if any) £ - - When received 19
W. H. Rogers, for self and J. McGee.
John Lundgren
Engineer Surveyor to Lloyd's Register of Ship

Committee's Minute THURSDAY 8 DEC 1955
Assigned See Nwc 112906