

REPORT ON BOILERS.

No. 80433

16 MAR 1921

Received at London Office

8 JUN 1920

Date of writing Report 4th June 1926 When handed in at Local Office 5th June 1926 Port of Newcastle-on-Tyne

No. in Surrey held at Hebburn & P.A. Glasgow. Date, First Survey 5th Jan 1926 Last Survey 1st June 1926

Reg. Book. on the Boilers No 1065-6 TWIN SCREW HOPPER DREDGER "PIEL." (Number of Visits 12) Tons {Gross 1231
Net 1178}

Vessel Hebburn Built at Port Glasgow By whom built Ferguson Bros. Yard No. 280 When built 1924

Engines made at Port Glasgow By whom made Ferguson Bros. P.A. Engine No. 280 When made 1924

Boilers made at Hebburn By whom made Palmers S.B. & Co. Ltd Boiler Nos 1065/6 When made 1926

Nominal Horse Power 141 Owners L. M & S RAILWAY CO LTD. Port belonging to London.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Company of Scotland Ltd. (Letter for Record S.)

Total Heating Surface of Boilers 3500 sq. ft. Is forced draught fitted No Coal or Oil fired Coal

No. and Description of Boilers Two, aft. multi single ended Working Pressure 180 lbs. sq.

Tested by hydraulic pressure to 320 lbs. Date of test 1-6-26 No. of Certificate 103/4 Can each boiler be worked separately YES.

Area of Firegrate in each Boiler 48 sq. ft. No. and Description of safety valves to each boiler 2 DIRECT SPRING.

Area of each set of valves per boiler {per Rule 2.68 DIA.
as fitted 2.45 DIA.} 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 ✓

Smallest distance between boilers or uptakes and bunkers or woodwork 4'-9" Is oil fuel carried in the double bottom under boilers NO.

Smallest distance between shell of boiler and tank top plating 2'-6" Is the bottom of the boiler insulated YES.

Largest internal dia. of boilers 13'-9" Length 10'-6" Shell plates: Material Steel Tensile strength 28-32 tons

Thickness 1 5/8" Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R.
inter. -}

long. seams T.R. - D.B.S. Diameter of rivet holes in {circ. seams 1 3/8"
long. seams 1 3/8"} Pitch of rivets {3 1/2"
8 1/2"}

Percentage of strength of circ. end seams {plate 67%
rivets 43%} Percentage of strength of circ. intermediate seam {plate -
rivets -}

Percentage of strength of longitudinal joint {plate 86%
rivets 87%
combined 88.9%} Working pressure of shell by Rules 185 lbs. sq.

Thickness of butt straps {outer 1 1/8"
inner 1 1/8"} No. and Description of Furnaces in each Boiler Two corrugated

Material Steel Tensile strength 26-30 tons Smallest outside diameter 4'-1 1/4"

Length of plain part {top 10 1/2"
bottom 10 1/2"} Thickness of plates {crown 5/8"
bottom 5/8"} Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 185 lbs. sq.

End plates in steam space: Material Steel Tensile strength 26-30 tons Thickness 1 5/8" Pitch of stays 20" x 19"

How are stays secured Double nuts and washers Working pressure by Rules 183 lbs. sq.

Tube plates: Material {front Steel
back "} Tensile strength {26-30 tons
"} Thickness {1"
1"}

Mean pitch of stay tubes in nests 10" Pitch across wide water spaces 14" Working pressure {front 276 lbs. sq.
back 200 lbs. sq.}

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

at centre 8 1/2" x 1 1/2" Length as per Rule 2'-6 21/32" Distance apart 9 3/4" No. and pitch of stays

in each 2 @ 9" Working pressure by Rules 277 lbs. Combustion chamber plates: Material Steel

Tensile strength 26-30 tons Thickness: Sides 2 1/8" Back 2 1/8" Top 1 1/8" Bottom 1"

Pitch of stays to ditto: Sides 9" x 9" Back 9" x 9" Top 9" x 9 3/4" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 185 lbs. sq. Front plate at bottom: Material Steel Tensile strength 26-30 tons.

Thickness 1" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 2 1/8"

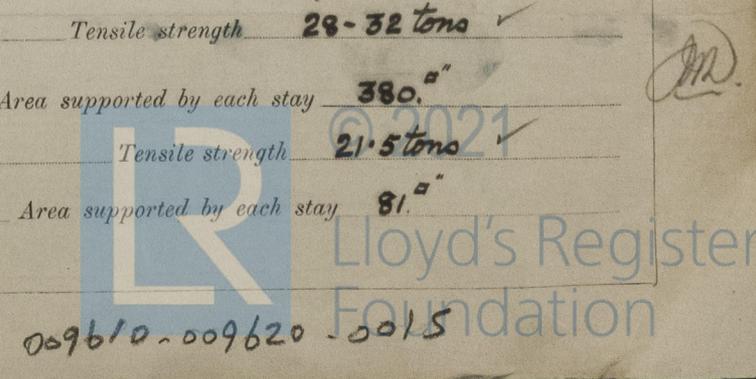
Pitch of stays at wide water space 14" Are stays fitted with nuts or riveted over Nuts

Working Pressure 209 lbs. sq. Main stays: Material Steel Tensile strength 28-32 tons

Diameter {At body of stay 3 1/4"
or 3 1/4"
Over threads 3 1/4"} No. of threads per inch 6 Area supported by each stay 380. sq.

Working pressure by Rules 211 lbs. Screw stays: Material Iron Tensile strength 21.5 tons

Diameter {At turned off part 1 3/4"
or 1 3/4"
Over threads 1 3/4"} No. of threads per inch 9 Area supported by each stay 81. sq.



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Working pressure by Rules 224 lbs^2 Are the stays drilled at the outer ends *No* Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \begin{array}{l} 17 \frac{1}{8} \end{array}$

No. of threads per inch 9 Area supported by each stay 103.5 Working pressure by Rules 203 lbs^2

Tubes: Material *Iron* External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \begin{array}{l} 3 \frac{1}{4} \\ 3 \frac{1}{4} \end{array}$ Thickness $\left\{ \begin{array}{l} \text{S.W.G.} \\ \frac{1}{4} + \frac{5}{16} \end{array} \right. \begin{array}{l} \\ \end{array}$ No. of threads per inch 9

Pitch of tubes $4 \frac{1}{2} \times 4 \frac{1}{2}$ Working pressure by Rules 230 lbs Manhole compensation: Size of opening in shell plate 20×16 Section of compensating ring $2.9 \frac{1}{2} \times 2.5 \frac{1}{2} \times 1 \frac{3}{8}$ No. of rivets and diameter of rivet holes $32 @ 1 \frac{7}{8}$

Outer row rivet pitch at ends $8 \frac{1}{2}$ Depth of flange if manhole flanged $3 \frac{1}{2}$ Steam Dome: Material *NONE*

Tensile strength Thickness of shell Description of longitudinal joint

Diameter of rivet holes Pitch of rivets Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$

Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays

How connected to shell Inner radius of crown Working pressure by Rules

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 $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right.$

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 23 inclusive for boilers been complied with *Yes.*

For *Palmer Shipbuilding & Iron Co., Ltd.*
The foregoing is a correct description,
J. Cameron
Manager, Hebburn Boiler Shop & Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops} \end{array} \right. \begin{array}{l} 1926 \\ \text{Jan. 5, 15, 18, Mar. 8, 25, Apr. 14, 19, 26, 30,} \\ \text{May 11, 20, June 1.} \end{array}$ Are the approved plans of boiler and superheater forwarded herewith *Yes.*

$\left\{ \begin{array}{l} \text{while} \\ \text{building} \end{array} \right. \left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel} \end{array} \right.$ (If not state date of approval.)

Total No. of visits *12.*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers were built under special survey, the workmanship and materials are good. The boilers were tested on completion by hydraulic pressure to 320 lbs. and found tight.*

These boilers have been securely fitted on board the vessel. The safety valves and mountings examined, and the safety valves adjusted under steam to 185 lbs.

See also Grk Rpt No.

Survey Fee ... £ *23 : 6 : 0* When applied for, *7 JUN 1926*

Travelling Expenses (if any) £ - : - : - When received, *28th July 1926*

Thomas Napier
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 15 MAR 1927*

Assigned *See Grk. Rpt. No. 18664*

