

REPORT ON BOILERS

No. 80248 attached
G.N. 18605

Received at London Office 31 MAR 1926

Date of writing Report 25/3/26 When handed in at Local Office 29/3/26 Port of Newcastle-on-Tyne

No. in Surrey held at Hebburn Date, First Survey 21st Dec/1925 Last Survey 18th March 1926

on the Boilers No. 1063-1064 T.S. HOPPER DREDGER "CARRON WATER" (Number of Visits 8) Tons { Gross 1232 Net 566

Dredger Built at Port Glasgow By whom built Ferguson Bros. Ltd Yard No. 249 When built 1926

Engines made at Port Glasgow By whom made Ferguson Bros Ltd. Engine No. 249 When made 1926

Boilers made at Hebburn By whom made Palmers S.B. & J. Co Ltd. Boiler Nos. 1063/4 When made 1926

Nominal Horse Power _____ Owners London Midland & Scottish Rly. Co. Port belonging to London.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Company of Scotland (Letter for Record (7))

Total Heating Surface of Boilers 3500 sq. ft. Is forced draught fitted Coal or Oil fired

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

Tested by hydraulic pressure to 320 lbs. Date of test 18.3.26 No. of Certificate 9981-2 Can each boiler be worked separately

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

Area of each set of valves per boiler { per Rule as fitted Pressure to which they are adjusted _____ Are they fitted with easing gear _____

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 _____ Is oil fuel carried in the double bottom under boilers

Smallest distance between shell of boiler and tank top plating _____ Is the bottom of the boiler insulated

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 O.R. inter. 3 5/8"

Long. seams T.R. D.B.S. Diameter of rivet holes in { circ. seams 1 3/8" long. seams 1 7/8" Pitch of rivets { 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. in.

Thickness of butt straps { outer 1 1/8" inner 1 7/8" No. and Description of Furnaces in each Boiler Two, 2 CF. Corrugated

Material Steel Tensile strength 26-30 tons Smallest outside diameter 4' 1 1/2"

Length of plain part { top 10 1/2" bottom 10 1/2" Thickness of plates { crown 5 5/8" bottom 5 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. in.

Head 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 D. nuts and washers Working pressure by Rules 183 lbs. sq. in.

Side plates: Material { front Steel back _____ Tensile strength { 26-30 tons Thickness { 1" 3/4"

Span pitch of stay tubes in nests 10" Pitch across wide water spaces 14" Working pressure { front 246 lbs. sq. in. back 200 lbs. sq. in.

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

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

each 2 @ 9" Working pressure by Rules 244 lbs. sq. in. Combustion chamber plates: Material Steel

Tensile strength 26-30 tons Thickness: Sides 3 1/32" Back 3 1/32" Top 1/4" 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. in. Front plate at bottom: Material Steel Tensile strength 26-30 tons

Thickness 1" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 27/32"

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

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

Diameter { At body of stay 3 1/2" No. of threads per inch 6 Area supported by each stay 380 sq. in. or Over threads 3 1/4"

Working pressure by Rules 211 lbs. sq. in. Screw stays: Material Iron Tensile strength 21 1/2 tons

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

Working pressure by Rules $224 \frac{265}{100}$ Are the stays drilled at the outer ends 70 Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part} \\ \text{or} \\ \text{Over threads} \end{array} \right. \frac{17}{8}$

No. of threads per inch 9 Area supported by each stay 103.5 Working pressure by Rules $203 \frac{265}{100}$

Tubes: Material *Iron* External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \left. \begin{array}{l} 3\frac{1}{4} \\ 3\frac{1}{4} \end{array} \right.$ Thickness $\left\{ \begin{array}{l} 8 \text{ W.C.} \\ \frac{1}{4} + \frac{5}{16} \end{array} \right.$ No. of threads per inch 9

Pitch of tubes $4\frac{1}{2} \times 4\frac{1}{2}$ Working pressure by Rules $230 \frac{265}{100}$ Manhole compensation: Size of opening in shell plate 20×16 Section of compensating ring $2.9\frac{1}{2} \times 2.5\frac{1}{2} \times \frac{3}{16}$ No. of rivets and diameter of rivet holes $32 @ 1\frac{1}{32}$

Outer row rivet pitch at ends $8\frac{1}{2}$ Depth of flange if manhole flanged $3\frac{1}{2}$ Steam Dome: Material

Tensile strength Thickness of shell Description of longitudinal joint

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

Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays 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 $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right.$

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

Material of headers Tensile strength Thickness Can the superheater be shut off 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 casing 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

The foregoing is a correct description,

A. Cameron for *W.B. Manufacturers*

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right. \left. \begin{array}{l} \text{1925} \\ \text{1926} \end{array} \right. \text{Dec. 21, Jan. 5, 25, Feb. 2, 18, Mar. 8, 12, 18.}$ Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) *Yes* Please return for duplicate Boilers.

Total No. of visits 8

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

These boilers have been built under special survey, the workmanship and material are good. The boilers were tested on completion by hydraulic pressure to 320 and found tight.

Survey Fee £ $23 : 6 : 0$ } When applied for, $80 \text{ MAR } 1926$ 192

Travelling Expenses (if any) £ : : } When received, $28 \text{ Apr. } 1926$

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

Committee's Minute **GLASGOW 14 SEP 1926**

*Assigned + L.M.C. 9.26
on G.R.K. list 18605.*



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