

22 AUG 1930

## REPORT ON BOILERS.

No. 85909

Received at London Office

26 JUN 1930

Date of writing Report 20-6-1930 When handed in at Local Office 24-6-1930 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Hebburn Date, First Survey 7 April Last Survey 18 June 1930

on the steam trawler MARY A. HASTIE

(Number of Visits 16) Gross Tons Net

Master Built at Aberdeen By whom built Alex. Hall & Co. Ltd. Yard No. 630 When built 1930

Engines made at Aberdeen By whom made Alex. Hall & Co. Ltd. Engine No. 330 When made 1930

Boilers made at Hebburn By whom made Palmers Co. Ltd. Boiler No. 1148 When made 1930

Nominal Horse Power 85 Owners R. Hastie & Son Ltd. Port belonging to North Shields.

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

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

Total Heating Surface of Boilers 1550 Is forced draught fitted No Coal or Oil fired COAL

No. and Description of Boilers ONE SINGLE ENDED Working Pressure 190 LBS.

Tested by hydraulic pressure to 335 LBS Date of test 18.6.30 No. of Certificate 476 Can each boiler be worked separately

Area of Firegrate in each Boiler 48.749 No. and Description of safety valves to each boiler 2 spring loaded

Area of each set of valves per boiler (per Rule 9.450, as fitted 11.880) Pressure to which they are adjusted 190 lb. 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 alt 9" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating no tank Is the bottom of the boiler insulated no

Largest internal dia. of boilers 13' 3" Length 10' 6" Shell plates: Material STEEL Tensile strength 29.33 TONS.

Thickness 1 7/16" Are the shell plates welded or flanged No Description of riveting: circ. seams end DRL

long. seams TR DBS Diameter of rivet holes in (circ. seams 1 1/8", long. seams 1 1/8") Pitch of rivets 3 3/8" 7 1/16"

Percentage of strength of circ. end seams (plate 67.8%, rivets 42.12%) Percentage of strength of circ. intermediate seam (plate 85.6%, rivets 86.5%)

Percentage of strength of longitudinal joint (plate 85.6%, rivets 86.5%, combined 88.26%) Working pressure of shell by Rules 192 LBS.

Thickness of butt straps (outer 1", inner 1") No. and Description of Furnaces in each Boiler THREE PLAIN

Material STEEL Tensile strength 26-30 TONS Smallest outside diameter 40 1/2"

Length of plain part (top 6' 11", bottom 6' 4") Thickness of plates (crown 25/32", bottom 25/32") Description of longitudinal joint WELD

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 192 LBS.

End plates in steam space: Material STEEL Tensile strength 26-30 TONS Thickness 1 3/32" Pitch of stays 17" x 18 3/4"

How are stays secured DOUBLE NUTS &amp; WASHERS Working pressure by Rules 196 LBS.

Tube plates: Material (front STEEL, back STEEL) Tensile strength 26-30 TONS Thickness 1 3/64" 3/4"

Mean pitch of stay tubes in nests 9 1/4" x 11 3/4" Pitch across wide water spaces 1' 2" Working pressure (front 195 LBS, back 200)

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

at centre 8 1/2" x 1 5/8" Length as per Rule 2' 6" Distance apart 9 1/4" No. and pitch of stays

in each 2 @ 9" Working pressure by Rules 220 LBS. Combustion chamber plates: Material STEEL

Tensile strength 26-30 TONS Thickness: Sides 11/16", Back 11/16", Top 11/16", Bottom 15/16"

Pitch of stays to ditto: Sides 9" x 9", Back 9 1/4" x 9 1/4", Top 9" x 9 1/4" Are stays fitted with nuts or riveted over NUTS

Working pressure by Rules 193 LBS. Front plate at bottom: Material STEEL Tensile strength 26-30 TONS.

Thickness 1 3/64" Lower back plate: Material STEEL Tensile strength 26-30 TONS Thickness 27/32"

Pitch of stays at wide water space d = 18.5" Are stays fitted with nuts or riveted over NUTS

Working Pressure 192 LBS. Main stays: Material STEEL Tensile strength 28-32 TONS

Diameter (At body of stay, or Over threads) 3" No. of threads per inch 6 Area supported by each stay 318.75

Working pressure by Rules 210 LBS. Screw stays: Material STEEL Tensile strength 26-30 TONS

Diameter (At turned off part, or Over threads) 1 3/4" No. of threads per inch 9 Area supported by each stay 85.5



Working pressure by Rules **210 LBS** Are the stays drilled at the outer ends **No** Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \frac{7}{8} \text{"} \checkmark$   
 No. of threads per inch **9** Area supported by each stay **112.5** Working pressure by Rules **190 LBS**  $\checkmark$   
**Tubes: Material STEEL** External diameter  $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \frac{3}{2} \text{"} \checkmark$  Thickness  $\left\{ \begin{array}{l} \text{8 WS} \\ \frac{1}{4} \text{ } \frac{5}{16} \end{array} \right. \checkmark$  No. of threads per inch **9**  
 Pitch of tubes  **$9\frac{1}{4} \times 11\frac{3}{4}$**  Working pressure by Rules **215 LBS** Manhole compensation: Size of opening  
 shell plate  **$12 \times 16$**  Section of compensating ring  **$7 \times 1\frac{1}{8}$**  No. of rivets and diameter of rivet holes **24 @  $1\frac{3}{16}$**   
 Outer row rivet pitch at ends  **$8\frac{3}{16}$**  Depth of flange if manhole flanged  $\checkmark$  Steam Dome: Material **STEEL**  $\checkmark$   
 Tensile strength **26-30 TONS** Thickness of shell  **$\frac{1}{2}$**  Description of longitudinal joint **DRL**  $\checkmark$   
 Diameter of rivet holes  **$\frac{15}{16}$**  Pitch of rivets  **$3\frac{1}{4}$**  Percentage of strength of joint  $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \frac{71.3}{75.0} \%$   
 Internal diameter  **$2' 5\frac{1}{2}$**  Working pressure by Rules **290 LBS** Thickness of crown  **$\frac{7}{8}$**  No. and diameter of  
 stays **3 @  $1\frac{3}{4}$**  Inner radius of crown  $\checkmark$  Working pressure by Rules  $\checkmark$   
 How connected to shell **DRL** Size of doubling plate under dome  **$2' 6 \times 2' 2 \times 1\frac{1}{8}$**  Diameter of rivet holes and pitch  
 of rivets in outer row in dome connection to shell  **$\frac{15}{16}$ ,  $6\frac{7}{16}$**

**Type of Superheater**  $\checkmark$  Manufacturers of  $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right. \checkmark$   
 Number of elements  $\checkmark$  Material of tubes  $\checkmark$  Internal diameter and thickness of tubes  $\checkmark$   
 Material of headers  $\checkmark$  Tensile strength  $\checkmark$  Thickness  $\checkmark$  Can the superheater be shut off and  
 the boiler be worked separately  $\checkmark$  Is a safety valve fitted to every part of the superheater which can be shut off from the boiler  $\checkmark$   
 Area of each safety valve  $\checkmark$  Are the safety valves fitted with easing gear  $\checkmark$  Working pressure as per  
 Rules  $\checkmark$  Pressure to which the safety valves are adjusted  $\checkmark$  Hydraulic test pressure:  
 tubes  $\checkmark$ , castings  $\checkmark$  and after assembly in place  $\checkmark$  Are drain cocks or valves fitted  
 to free the superheater from water where necessary  $\checkmark$

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

For **The foregoing is a correct description,**  
**Palmer's Shipbuilding & Iron Co., Ltd.**  
**A. Cameron** Manufacturer.  
**Manager, Boiler Shop Dept.**

Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops} \end{array} \right. \frac{1930}{\text{Apr. 7, 11, 15, 21, 25, 29, May 8, 14, 16, 26, 28, 30, June 25, 11, 18.}}$  Are the approved plans of boiler and superheater forwarded herewith **Yes**  
 while building  $\left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel} \end{array} \right. \frac{1930}{\text{July 18, Aug. 13.}}$  (If not state date of approval.)  
 Total No. of visits **16**

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) **This boiler has been built under Special Survey, the materials and workmanship are good.**

**The boiler has been fitted in the steam trawler "MARY A. HASTIE." The safety valves have been adjusted under steam & tried for accumulation. Boiler examined under steam & found satisfactory.**

**P. Fitzgerald.**  
**Aberdeen**

Survey Fee ... £ **10 : 7 : 0** When applied for, **25 JUN 1930** 192  
 Travelling Expenses (if any) £ : : When received, **Per Secy. letter 6-8-30.** 192

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

Committee's Minute **TUE. 26 AUG 1930**

Assigned

**See F.E. Rpt.**



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 Foundation