

## REPORT ON BOILERS.

No. 81191

revised at London office

NEWCASTLE-ON-TYNE.

Date of writing Report 31-3-1919 When handed in at Local Office 31-3-1919 Part of  
No. in Survey held at Jarrow Date, First Survey 5<sup>th</sup> Dec 1919 Last Survey 25<sup>th</sup> March 1927  
Reg. Book 89357 on the S.S. "HEDGEHOPE" (Number of Visits —) Gross 4500 Tons Net 2860  
Master Built at Heltburn By whom built Palmers S. & S. Co. Ltd. Yard No. 922 When built 1927  
Engines made at Jarrow By whom made Palmers S. & S. Co. Ltd. Engine No. 922 When made 1927  
Boilers made at " By whom made " Boiler No. 922 When made 1927  
Nominal Horse Power 450 Owners Medway Steam Shipping Co. Ltd. Port belonging to Newcastle

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel J. Spencer & Sons Ltd. Newcastle (Letter for Record (S))  
Total Heating Surface of Boilers 6372  $\text{ft}^2$  3 SB Is forced draught fitted YES Coal or Oil fired COAL  
No. and Description of Boilers 3 SINGLE ENDED CYLINDRICAL, MULTITUBULAR Working Pressure 180 LBS.  
Tested by hydraulic pressure to 360 LBS. Date of test 14.12.26 22.12.26 28.1.27 No. of Certificate 122 123 127 Can each boiler be worked separately YES  
Area of Firegrate in each Boiler 50  $\text{ft}^2$  No. and Description of safety valves to each boiler TWO SPRING LOADED  
Area of each set of valves per boiler {per Rule 16.36 as fitted 16.59 Pressure to which they are adjusted 180 LBS 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 2' 0" Is oil fuel carried in the double bottom under boilers No  
Smallest distance between shell of boiler and tank top plating 2' 0" Is the bottom of the boiler insulated YES  
Largest internal dia. of boilers 13' 9" Length 11' 6" MEAN Shell plates: Material STEEL Tensile strength 26-30 TONS  
Thickness 1 1/8" Are the shell plates welded or flanged No Description of riveting: circ. seams end D.R.L. inter. —  
long. seams T.R. D.B.S. Diameter of rivet holes in {circ. seams 1 1/4" long. seams 1 3/16" Pitch of rivets {4" 8 3/8"  
Percentage of strength of circ. end seams {plate 68.75 rivets 44.8 Percentage of strength of circ. intermediate seam {plate — rivets —  
Percentage of strength of longitudinal joint {plate 85.8 rivets 87.4 Working pressure of shell by Rules 183 LBS.  
combined 89.2  
Thickness of butt straps {outer 1 1/16" inner 1 1/8" No. and Description of Furnaces in each Boiler 3 MORISON SUSPENSION  
Material STEEL Tensile strength 26-30 TONS Smallest outside diameter 2' 11 1/4"  
Length of plain part {top 10 1/2" bottom 10 1/2" Thickness of plates {crown 1/2" bottom 1/2" Description of longitudinal joint WELDED  
Dimensions of stiffening rings on furnace or c.c. bottom — Working pressure of furnace by Rules 190 LBS.  
End plates in steam space: Material STEEL Tensile strength 26-30 TONS Thickness 1 3/4" Pitch of stays 20" x 18 1/4"  
How are stays secured DOUBLE NUTS & WASHERS Working pressure by Rules 182 LBS.  
Tube plates: Material {front STEEL Tensile strength 26-30 TONS Thickness 31/32" 11/16"  
back STEEL Tensile strength 26-30 TONS Thickness 31/32" 11/16"  
Mean pitch of stay tubes in nests 9 3/8" Pitch across wide water spaces 13 3/4" Working pressure {front 190 LBS. back 192.7 LBS.  
Girders to combustion chamber tops: Material STEEL Tensile strength 28-32 TONS Depth and thickness of girder  
at centre 8 1/2" x 1 3/4" Length as per Rule 2' 9 3/4" Distance apart 9" No. and pitch of stays  
in each 2 @ 10 1/32" Working pressure by Rules 194 LBS. Combustion chamber plates: Material STEEL  
Tensile strength 26-30 TONS Thickness: Sides 23/32" Back 11/16" Top 23/32" Bottom 15/16"  
Pitch of stays to ditto: Sides 9" x 8 3/8" Back 10" x 8 3/4" Top 10 1/32" x 9" Are stays fitted with nuts or riveted over NUTS  
Working pressure by Rules 185 LBS. Front plate at bottom: Material STEEL Tensile strength 26-30 TONS  
Thickness 31/32" Lower back plate: Material STEEL Tensile strength 26-30 TONS Thickness 7/8"  
Pitch of stays at wide water space 13 3/4" Are stays fitted with nuts or riveted over NUTS  
Working Pressure 183 LBS. Main stays: Material STEEL Tensile strength 28-32 TONS  
Diameter {At body of stay, — No. of threads per inch 6 Area supported by each stay 365  $\text{in}^2$   
Over threads 3 1/8"  
Working pressure by Rules 189.5 LBS. Screw stays: Material STEEL Tensile strength 26-30 TONS  
Diameter {At turned off part, — No. of threads per inch 9 Area supported by each stay 94.2  $\text{in}^2$   
Over threads 1 3/4"



Working pressure by Rules **194 LBS.** Are the stays drilled at the outer ends **No** ✓ Margin stays: Diameter { At turned off part, or Over threads **1 1/8", 2"** ✓  
 No. of threads per inch **9** ✓ Area supported by each stay **112.5" x 126.56"** Working pressure by Rules **188.3 LBS.** **192.5 LBS.** ✓  
 Tubes: Material **IRON** ✓ External diameter { Plain **2 1/2"** ✓ Stay **2 1/2"** ✓ Thickness **1/8"** ✓ L.S.C. ✓ No. of threads per inch **9** ✓  
 Pitch of tubes **3 3/4" x 3 3/4"** ✓ Working pressure by Rules **188.3 LBS.** ✓ Manhole compensation: Size of opening in shell plate **20" x 16"** ✓ Section of compensating ring **25" x 1 1/8"** ✓ No. of rivets and diameter of rivet holes **36 @ 1 1/4"** ✓  
 Outer row rivet pitch at ends **8 3/8"** ✓ Depth of flange if manhole flanged **3 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 { Plate **-** Rivets **-**  
 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 { Tubes **-** 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 **-** 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** ✓

The foregoing is a correct description,

*Palmer Shipbuilding & Iron Co. Ltd.* Manufacturer.

Dates { During progress of work in shops - - Survey while building { During erection on board vessel - -

*See Ind. Report*

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval) **See Ind. Report**  
 Total No. of visits **-**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been built under Special survey. The materials and workmanship are good.*

Survey Fee ... **See Ind. Report** : When applied for, 192  
 Travelling Expenses (if any) **See Ind. Report** : When received, 192

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

Committee's Minute **FRI. 8 APR 1927.**

Assigned *See Ind. Report attached*



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