

# REPORT ON BOILERS.

No. 44686

25 MAR 1937

Received at London Office 30 MAR 1937

Date of writing Report 19 \_\_\_\_\_ When handed in at Local Office 19 \_\_\_\_\_ Port of **HULL**

No. in Reg. Book. Survey held at **Hull.** Date, First Survey **29<sup>th</sup> Dec. 1936** Last Survey **19<sup>th</sup> March 1937**

**67243** on the **Steam Trawler "ARCTIC PIONEER"** (Number of Visits ) Gross Tons **501.17** Net Tons **188.99**

Master  Built at **Selby.** By whom built **Bochraane & Sons L<sup>td</sup>** Yard No. **1177** When built **1937-3**

Engines made at **Hull.** By whom made **S. D. Holmes & Co., L<sup>td</sup>** Engine No. **1521** When made **1937**

Boilers made at **Hull.** By whom made **S. D. Holmes & Co., L<sup>td</sup>** Boiler No. **1521** When made **1937**

Nominal Horse Power **132.** Owners **Boyd Line L<sup>td</sup>** Port belonging to **Hull.**

## MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel **The Steel Company of Scotland L<sup>td</sup>** (Letter for Record **"S"**)

Total Heating Surface of Boilers **2415 square feet** Is forced draught fitted **No** Coal or Oil fired **Coal**

No. and Description of Boilers **One Single Ended Return Tube** Working Pressure **220 lbs/sq"**

Tested by hydraulic pressure to **380 lbs/sq"** Date of test **6.3.37** No. of Certificate **3966** Can each boiler be worked separately

Area of Firegrate in each Boiler **64 sq ft.** No. and Description of safety valves to each boiler **Two 3" diameter spring loaded**

Area of each set of valves per boiler { per Rule **12.9 sq ins** as fitted **14.13 sq ins** Pressure to which they are adjusted **220 lbs/sq"** 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 **10"** 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 **15'-6"** Length **11'-0"** Shell plates: Material **Steel** Tensile strength **31.35 Tons/sq"**

Thickness **1 13/32"** Are the shell plates welded or flanged **No** Description of riveting: circ. seams **Double riveted** inter. \_\_\_\_\_

long. seams **Treble riveted S.B.S.** Diameter of rivet holes in { circ. seams **1 13/32"** long. seams **1 13/32"** Pitch of rivets { **3 3/4"** **9 9/16"**

Percentage of strength of circ. end seams { plate **62.6** rivets **43.7** Percentage of strength of circ. intermediate seam { plate \_\_\_\_\_ rivets \_\_\_\_\_

Percentage of strength of longitudinal joint { plate **84.63** rivets **87.5** combined **86.8.** Working pressure of shell by Rules **220 lbs/sq"**

Thickness of butt straps { outer **1 3/32"** inner **1 1/32"** No. and Description of Furnaces in each Boiler **3 Doughton Corrugated** **304**

Material **Steel** Tensile strength **26-30 Tons/sq"** Smallest outside diameter **3'-9 1/8"**

Length of plain part { top \_\_\_\_\_ bottom \_\_\_\_\_ Thickness of plates { crown **11/16"** bottom **11/16"** Description of longitudinal joint **Welded**

Dimensions of stiffening rings on furnace or c.c. bottom \_\_\_\_\_ Working pressure of furnace by Rules **223 lbs/sq"**

End plates in steam space: Material **Steel** Tensile strength **26-30 Tons/sq"** Thickness **1 1/32"** Pitch of stays **18 1/4" x 18 3/4"**

How are stays secured **Double nuts & washers.** Working pressure by Rules **230 lbs/sq"**

Tube plates: Material { front **Steel** back **Steel** Tensile strength { **26-30 Tons/sq"** **26-30 Tons/sq"** Thickness { **19/16"** **29/32"**

Mean pitch of stay tubes in nests **11"** Pitch across wide water spaces **1'-2 1/4"** Working pressure { front **225 lbs/sq"** back **226 lbs/sq"**

Girders to combustion chamber tops: Material **Steel** Tensile strength **29.33 Tons/sq"** Depth and thickness of girder at centre **9 1/2" x 2 at 7/8" Thk** Length as per Rule **2'-9 7/32"** Distance apart **9 1/4" Wing 8" Centre** No. and pitch of stays in each **3 at 7 3/4"** Working pressure by Rules **248 lbs/sq"** Combustion chamber plates: Material **Steel**

Tensile strength **26-30 Tons/sq"** Thickness: Sides **23/32"** Back **23/32"** Top **11/16"** Bottom **7/8"**

Pitch of stays to ditto: Sides **9 1/2" x 8 1/4"** Back **9 3/4" x 8 1/4"** Top **7 3/4" x 9 1/4"** Are stays fitted with nuts or riveted over **Nuts**

Working pressure by Rules **222 lbs/sq"** Front plate at bottom: Material **Steel** Tensile strength **26-30 Tons/sq"**

Thickness **15/16"** Lower back plate: Material **Steel** Tensile strength **26-30 Tons/sq"** Thickness **29/32"**

Pitch of stays at wide water space **1'-2 1/4"** Are stays fitted with nuts or riveted over **Nuts.**

Working Pressure **242 lbs/sq"** Main stays: Material **Steel** Tensile strength **28-32 Tons/sq"**

Diameter { At body of stay, \_\_\_\_\_ or Over threads **3 1/4"** No. of threads per inch **8.** Area supported by each stay **342 square inches**

Working pressure by Rules **220 lbs/sq"** Screw stays: Material **Steel** Tensile strength **26-30 Tons/sq"**

Diameter { At turned off part, \_\_\_\_\_ or Over threads **1 3/4"** No. of threads per inch **10** Area supported by each stay **80.5 square inches**



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Working pressure by Rules 222 lbs/p Are the stays drilled at the outer ends No Margin stays: Diameter <sup>At turned off part,</sup> 7/8" x 2"  
 No. of threads per inch 10 Area supported by each stay 99 square inches Working pressure by Rules 250 lbs/p  
 Tubes: Material Iron External diameter <sup>Plain 3 1/2"</sup> Thickness <sup>7 W. 9</sup> 5 1/16" 3/8" 7/16" No. of threads per inch 9  
 Pitch of tubes 4 3/4" x 4 7/8" Working pressure by Rules 260 lbs/p Manhole compensation: Size of opening in  
 shell plate 16" x 12" Section of compensating ring 4 1/4" dia x 1 3/8" thk No. of rivets and diameter of rivet holes 86 at 1 5/32" dia:  
 Outer row rivet pitch at ends 10 3/4" Depth of flange if manhole flanged ✓ Steam Dome: Material Steel  
 Tensile strength 26-30 Tons/p Thickness of shell 3/4" Description of longitudinal joint Single riveted lap  
 Diameter of rivet holes 1 1/32" Pitch of rivets 2 1/4" Percentage of strength of joint <sup>Plate 54.4</sup>  
 Internal diameter 2'-9" Working pressure by Rules 231 lbs/p Thickness of crown 7/8" No. and diameter of  
 stays 2 at 2 7/8" diameter Inner radius of crown ✓ Working pressure by Rules Simple  
 How connected to shell Double riveted lap Size of doubling plate under dome 4 1/4" dia x 1 3/8" thk Diameter of rivet holes and pitch  
 of rivets in outer row in dome connection to shell 1 1/32" x 10 3/4" pitch

Type of Superheater Smoke tube Manufacturers of <sup>Tubes Please see Manchester</sup>  
 Number of elements 48 Material of tubes S. D. Steel <sup>Steel forgings report N° F6051</sup>  
 Material of headers Steel Tensile strength 26-30 Tons/p Thickness 5/8" <sup>Steel castings Blackell Hutton & Co.</sup>  
 the boiler be worked separately Yes Is a safety valve fitted to every part of the superheater which can be shut off from the boiler Yes  
 Area of each safety valve 1.76 square ins Are the safety valves fitted with easing gear Yes Working pressure as per  
 Rules Approved for 220 lbs/p Pressure to which the safety valves are adjusted 220 lbs/p Hydraulic test pressure:  
 tubes 1000 lbs/p forgings and castings 660 lbs/p (and after assembly in place 660 lbs/p) Are drain cocks or  
 valves fitted to free the superheater from water where necessary Yes  
 Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes

The foregoing is a correct description,  
 FOR CHARLES B. HOLMES & CO., LTD. Manufacturers.  
*J. A. Ord*

Dates of Survey <sup>During progress of work in shops - -</sup> Please see mchly Rpt Are the approved plans of boiler and superheater forwarded herewith yes  
 while building <sup>During erection on board vessel - - -</sup> herewith Total No. of visits ✓

Is this Boiler a duplicate of a previous case No If so, state Vessel's name and Report No. "Arctic Explorer" 47671.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The boiler has been built under special survey and in accordance with the approved plan. It has been satisfactorily fitted on board, examined under steam and the safety valves adjusted.

Charged on engine report herewith

Survey Fee ... .. £	:	:	When applied for,	19
Travelling Expenses (if any) £	✓	:	When received,	19

J. A. Ord  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 2 APR 1937

Assigned See other F. C. report.

