

REPORT ON BOILERS.

No. 44686.

25 MAR 1937

Received at London Office

20 MAR 1937

Date of writing Report

19

When handed in at Local Office

19

Port of

HULL

No. in Survey held at

Reg. Book.

Date, First Survey

29th Dec. 1936

Last Survey

19th March 1937

67243 on the

Steam Trawler "ARCTIC PIONEER"

(Number of Visits)

✓

Gross 501.17

Tons

Net 188.99

Master

Built at

Selby.

By whom built

Bochraane & Sons L^{td}

Yard No. 1177

When built 1937-3

Engines made at

Hull.

By whom made

S. D. Holmes & Co. L^{td}

Engine No. 1521

When made 1937

Boilers made at

Hull.

By whom made

S. D. Holmes & Co. L^{td}

Boiler No. 1521

When made 1937

Nominal Horse Power

132.

Owners

Boyd Line L^{td}

Port belonging to

Hull.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

The Steel Company of Scotland L^{td}

(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 boiler 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 3/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end

Double riveted

long. seams

Treble riveted S.B.S.

Diameter of rivet holes in

circ. seams 1 3/32"

long. seams 1 3/32"

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 3/32"

No. and Description of Furnaces in each Boiler

3 Doughton Corrugated

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 1/16"

bottom 1/16"

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 3/32"

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

Thickness

23/32"

Working pressure

front 225 lbs/sq

back 226 lbs/sq

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" thick

Length as per Rule

2'-9 3/32"

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

1/16"

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, 3 1/4"

or

Over threads

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, 1 3/4"

or

Over threads

No. of threads per inch

10

Area supported by each stay

80.5 square inches

Working pressure by Rules 222 lbs/p Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, 7/8" x 2"
or Over threads
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 { Plain 3 1/2" Thickness { 7/16" x 3/8" x 7/16" No. of threads per inch 9
Stay 3 1/2"
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 1/2" thk No. of rivets and diameter of rivet holes 86 at 1 1/2" 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 1/2" Pitch of rivets 2 1/4" Percentage of strength of joint { Plate 54.4
Rivets 44
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 1/2" thk Diameter of rivet holes and pitch
of rivets in outer row in dome connection to shell 1 1/2" x 10 3/4" pitch

Type of Superheater Smoke tube Manufacturers of { Tubes Please see Manchester
Steel forgings report N° F6051
Steel castings Blackell Hutton & Co.
Number of elements 48 Material of tubes S. D. Steel Internal diameter and thickness of tubes 1 1/2" m. 3 m/m.
Material of headers Steel Tensile strength 26-30 Tons/p Thickness 5/8" Can the superheater be shut off and
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 D. HOLMES & CO., LTD. Manufacturers.

Dates { During progress of work in shops -- } Are the approved plans of boiler and superheater forwarded herewith yes
while building { During erection on board vessel -- } (If not state date of approval.)
Please see mchry Rpt 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. Orde
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 2 APR 1937

Assigned See other F. C. report.



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Foundation