

## REPORT ON BOILERS.

No. 82336

Boilers.

Received at London Office

6 FEB 1928

Date of writing Report 27 Dec 1927

When handed in at Local Office 27 Dec 1927

Port of Newcastle on Tyne

Shipping bolts

No. in Reg. Book.

Surrey held at Elswick, Newcastle

Date, First Survey

8 Feb 1927

Last Survey

27 Jan 1928

each) 8

9998

on the Steel Linn Screw Beaverdale

(Number of Visits 69)

Gross

Tons

Net

Bearings

same

Laster

Built at

Walker on Tyne

By whom built

Sir H. G. Armstrong Whitworth &amp; Co. Ltd

Yard No. 1019

When built 1928

Engines made at

Newcastle

By whom made

Parsons M &amp; L Turbine Co. Ltd

Engine No. 238

When made 1928

Boilers made at

Elswick, Newcastle

By whom made

Sir H. G. Armstrong Whitworth &amp; Co. Ltd

Boiler No. 1311

When made 1928

Nominal Horse Power

1578

Owners

Canadian Pacific Ry. Co.

Port belonging to

London

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

Manufacturers of Steel

D. Colville &amp; Sons for Plates, Steel Co. of Scotland (Glasgow)

(Letter for Record 5)

Total Heating Surface of Boilers

5200 square feet

Is forced draught fitted

yes

Coal or Oil fired

Coal

No. and Description of Boilers

Two Cylindrical Multitubular

Working Pressure 250 lbs

Tested by hydraulic pressure to

425 lbs

Date of test

12/7/27

No. of Certificate

165

Can each boiler be worked separately

yes

Area of Firegrate in each Boiler

57.75 sq ft

No. and Description of safety valves to each boiler

Two Cockburns, high lift

Area of each set of valves per boiler

per Rule 6.1 sq ft

as fitted

9.42 sq ft

Pressure to which they are adjusted

250 lbs

Are they fitted with easing gear

yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

8 feet

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

3 feet

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

15-5 1/16"

Length

11-0"

Shell plates: Material

Steel

Tensile strength

30/34 tons

Thickness

1 1/32"

Are the shell plates welded or flanged

No

Description of riveting: - circ. seams

end 2 R Lap

inter. None

Diameter of rivet holes in

circ. seams 1 1/16"

long. seams 1 1/16"

Pitch of rivets

4.53"

11 1/2"

Percentage of strength of circ. end seams

plate 62.5

rivets 45.8

Percentage of strength of circ. intermediate seam

plate None

rivets None

Percentage of strength of longitudinal joint

plate 85.2

rivets 84.3

combined 87.5

Working pressure of shell by Rules

252 lbs per sq in

Thickness of butt straps

outer 1 1/4"

inner 1 3/8"

No. and Description of Furnaces in each Boiler

3, Brightons

Material

Steel

Tensile strength

26/30 tons

Smallest outside diameter

43 1/2"

Length of plain part

top 1 3/4"

bottom 1 3/4"

Thickness of plates

crown 1 3/4"

bottom 1 3/4"

Description of longitudinal joint

Welded

Dimensions of stiffening rings on furnace or c.c. bottom

None

Working pressure of furnace by Rules

253 lbs

Plates in steam space: Material

Steel

Tensile strength

26/30 tons

Thickness

1 7/16"

Pitch of stays 21 3/4" x 15"

Are stays secured

Double nuts &amp; washers

Working pressure by Rules

263 lbs

Material

Steel

Tensile strength

26/30 tons

Thickness

31/32"

7/8"

Pitch of stay tubes in nests

9 1/4"

Pitch across wide water spaces

13 3/4"

Working pressure

front 256 lbs

back 324

Dimensions of combustion chamber tops: Material

Steel

Tensile strength

26/30 tons

Depth and thickness of girder

Distance apart

8"

No. and pitch of stays

Length as per Rule

34 7/16"

Working pressure by Rules

253 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

1 1/16"

Back

1 1/16"

Top

1 1/16"

Bottom

1"

Are stays fitted with nuts or riveted over

Nuts inside

Working pressure by Rules

250 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

15/16"

Working pressure at wide water space

14 7/4"

Are stays fitted with nuts or riveted over

Nuts

Working Pressure

266 lbs

Main stays: Material

Steel

Tensile strength

28/32 tons

At body of stay, or Over threads

3 1/2"

No. of threads per inch

6

Area supported by each stay

326 sq in

Working pressure by Rules

291 lbs

Screw stays: Material

Steel

Tensile strength

26/30 tons

At turned off part, or Over threads

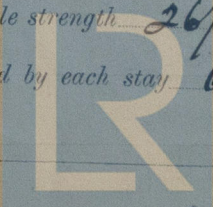
1 3/4"

No. of threads per inch

9

Area supported by each stay

66 sq in



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W336-0019



Working pressure by Rules 274 lb Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part. 2" + 2 1/4"  
 No. of threads per inch 9 Area supported by each stay 92.124 sq in Working pressure by Rules 262 lb  
 Tubes: Material Iron External diameter { Plain 2 3/4" Thickness 5/16 - 7/16" No. of threads per inch 9  
 Pitch of tubes 8" x 8" Working pressure by Rules 264 lb Manhole compensation: Size of opening 36  
 shell plate 21/8" x 17" Section of compensating ring 19 5/8" x 1 21/32" No. of rivets and diameter of rivet holes 18" x 1 1/16"  
 Outer row rivet pitch at ends 11 1/2" Depth of flange if manhole flanged 3 3/4" Steam Dome: Material None  
 Tensile strength ✓ Thickness of shell ✓ Description of longitudinal joint ✓  
 Diameter of rivet holes ✓ Pitch of rivets ✓ Percentage of strength of joint { Plate ✓  
 Internal diameter ✓ Working pressure by Rules ✓ Thickness of crown ✓ No. and diameter of stays ✓  
 stays ✓ Inner radius of crown ✓ Working pressure by Rules ✓  
 How connected to shell ✓ Size of doubling plate under dome ✓ Diameter of rivet holes and of rivets in outer row in dome connection to shell ✓  
 { Fitted to forward boiler only  
 Type of Superheater Superheater Co. Co Manufacturers of { Tubes See attached  
 Number of elements ✓ Material of tubes ✓ Steel castings Manchurian  
 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 yes  
 Area of each safety valve 1.77 sq in Are the safety valves fitted with easing gear yes Working pressure as Rules 250 lb  
 tubes 1000 lb per sq in Pressure to which the safety valves are adjusted 250 lb per sq in Hydraulic test pressure ✓  
 to free the superheater from water where necessary yes and after assembly in place 750 lb per sq in Are drain cocks or valves ✓  
 Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with yes

T. H. Macleod For W. G. ARMSTRONG, WHITWORTH & CO. LIMITED. Manufacture  
 The foregoing is a correct description, yes

Dates of Survey { During progress of work in shops - 1927 Feb. 8, 10, 14, 16, 21, 25, Mar. 2, 8, 15, 17, 23, 25, 31. Are the approved plans of boiler and superheater forwarded herewith yes  
 while building { During erection on board vessel - 24, 26, 30, June 1, 3, 9, 13, 16, 17, 28, July 4, 24, 26, 30, Aug. 5, 6, 8, 12, 13, 16, 18, 19, 20, 22, 25, 27, 30, Sept. 2, 12, 13, 23, Oct. 3, 18, Nov. 3, 1928 Jan 27. (If not state date of approval.) Total No. of visits 69

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These (2) Scotch type boilers have been constructed under special survey, the materials and workmanship are of good quality and on completion were tested by hydraulic pressure to 250 lb per sq in and found tight and sound at that pressure.

These boilers are now fitted on board the L.S. Beaverdale.

Tested under steam & safety valves adjusted 30.1.28

Boilers & Superheater plans, Invoices of steel plates, stay bars - furn reports on Superheater safety valves, cost steel branch pipes, stay rods and Superheaters now attached.

Survey Fee ... .. £ 29.17.0 When applied for, 4. FEB 1928  
 Travelling Expenses (if any) £ ... .. When received, 9. 2. 1928

George Hurdock  
 Engineer Surveyor to Lloyd's Register of Ships

Committee's Minute TUES. 14. FEB 1928

Assigned

See pt. attached



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