

No. 2277

*S. 633*

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

*107248*

*N.N. C.D. ANSELL*

Report No. *2265* No. in Register Book *3649*

*RALPH S. MILNER*

S.S. ....

*"Fairlake"*

Makers of Engines .....

*Barclay Curle & Co.*

Works No. ....

*633*

Makers of Main Boilers .....

*do.*

Works No. ....

*633*

Makers of Donkey Boiler .....

Works No. ....

MACHINERY.



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*14*

*002529-002535-0002*

No. 2277

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. .... No. in Register Book .....

S.S. "Fairlake"

Makers of Engines Barclay, Curle & Co., Ltd.

Works No. 633

Makers of Main Boilers Same

Works No. 633

Makers of Donkey Boiler —

Works No. —

MACHINERY.



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No.

REGISTRATING ENGINES  
THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. .... No. in Register Book .....

Received at Head Office.....

11<sup>th</sup> May 1929

Surveyor's Report on the Detw Engines, Boilers, and Auxiliary  
Machinery of the Single Screw Steamer

"Fairlake"

Official No.

Port of Registry

Welland, Ont.

Registered Owners

Fairport Steamship Company,  
Limited, Welland, Ontario.

Engines Built by

Barclay, Curle & Co., Ltd.

at

Scotstoun, Glasgow.

Main Boilers Built by

Same firm,

at

Kelvinhaugh St., Glasgow.

Donkey .. ..

at

Date of Completion

9/5/29

First Visit

8/1/29

Last Visit

9/5/29

Total Visits

21

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## RECIPROCATING ENGINES.

Works No. **633** No. of Sets **One** Description **Triple expansion vertical surface-condensing steam**

No. of Cylinders each Engine **3** No. of Cranks **3**  
 Diars of Cylinders **15", 25" and 40"** Stroke **33"**  
 Cubic feet in ~~one~~ L.P. Cylinder **24**

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr. **Yes.**  
 " " each Receiver? **Yes, except H.P.**

Type of H.P. Valves, **Piston.**  
~~the~~ I.P. " **Slide.**

L.P. " **"**

" Valve Gear **Stevenson Link Motion**

" Condenser **Riveted Steel.** Cooling Surface **700** sq. ft.

Diameter of Piston Rods (plain part) Screwed part (bottom of thread)

Material **"**

Diar. of Connecting Rods (smallest part) Material

" Crosshead Gudgeons Length of Bearing Material

No. of Crosshead Bolts (each) **2** Diar. over Thrd. Thrds. per inch Material

" Crank Pin " **2** " " "

" Main Bearings **6** Lengths

" Bolts in each **2** Diar. over Thread Threads per Inch Material

" Holding Down Bolts, each Engine **61** Diar. No. of Metal Chocks **61**

Are the Engines bolted to the Tank Top or to a Built Seat? **Tank top**

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside? **Yes.**

If not, how are they fitted?

Connecting Rods, Forged by **Rotherham Forge & R.M. Co. Ltd.**

Piston " " " " " "

Crossheads, " **Barclay, Curle & Co. Ltd.**

Connecting Rods, Finished by " " "

Piston " " " " " "

Crossheads, " " " " " "

Date of Harbour Trial **6/5/29**

" Trial Trip **9/5/29**

Trials run at **Shelburnie & Firth of Clyde.**

Were the Engines tested to full power under Sea-going conditions? **Yes, light ship.**

If so, what was the I.H.P.? **850** Revols. per min. **96**

Pressure in ~~the~~ <sup>H.P.</sup> Receiver, **180** lbs. ~~the~~ I.P., **72** lbs., L.P., **10½** lbs., Vacuum, **27** ins.

Speed on Trial **9.207** Knots.

If the Conditions on Trial were such that full power records were not obtained give the following estimated

data:—

Builders' estimated I.H.P. Revols. per min.

Estimated Speed

"For all other particulars, see Report on S.S. "Sarniadoc".



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No. of Blades each Propeller **4** Fitted or Solid? **Fitted.**  
 Material of Blades **C.I.** Boss **C.I.**  
 Diam. of Propellers **12-3"** Pitch **10-9"** Surface (each) **48** S. ft.  $\lambda$   
 Coefficient of Displacement of Vessel at  $\frac{3}{8}$  Moulded Depth

Crank Shafts Forged by	<b>Dennytown Forge</b>	Material	<b>I.S.</b>
,, Pins	"	"	"
,, Webs	<b>Beardmore &amp; Co.</b>	"	"
Thrust Shafts	<b>Dennytown Forge.</b>	"	"
Intermed. ,,	"	"	"
Propeller ,,	"	"	"
Crank ,, Finished by	<b>Barclay, Curle &amp; Co.</b>		
Thrust ,,	"	"	"
Intermed. ,,	"	"	"
Propeller ,,	"	"	"

STAMP MARKS ON SHAFTS.

B.C.  
 11033  
 J.W.H.  
 2/4/29

SKETCH OF PROPELLER SHAFT.

*(Faint, mostly illegible text from the reverse side of the page, including terms like "No. of Air Pumps", "Type of", "Diam. of", "Has each Pump a High Position with Non-return Valve?", "What other Pumps can discharge through Containers?", "No. of Test Pumps on Main Engine", "Are Spring-loaded Relief Valves fitted to each Pump?", "Can one Pump be overhauled while the others are at work?", "No. of Independent Test Pumps", "What other Pumps can feed the Boilers?", "No. of High Pumps on Main Engine", "Can one Pump be overhauled while the others are at work?", "No. of Independent High Pumps", "What other Pumps can draw from the Highs?", "Are all High Boilers fitted with Highs?", "Are the Valves, etc., so arranged as to prevent unnecessary connection between sea and Highs?", "Are all Sea Connections made with Highs?", "Are they pinned so as to be easily accessible?", "Are the Bearings, Cranks, etc., above or below the Dead Load?", "Are the main shafts to the Main Engine and shafts accessible?", "Are the main shafts of the Main Engine fitted with the Main Pumps and Covering Plates or Flanges on the Quills?"*

**See Report on S.S. "Saruiadoc."**





## BOILERS

Works No. **633**

No. of Boilers **2** Type **Cyl. multitubular**  
**Single.**

Single or Double-ended

No. of Furnaces in each **2**

Type of Furnaces **Deighton.**

Date when Plan approved **26/11/28**

Approved Working Pressure **180 lb/□"**

Hydraulic Test Pressure **320 "**

Date of Hydraulic Test **4/4/29**

„ when Safety Valves set **6/5/29**

Pressure at which Valves were set **185 lb/□"**

Date of Accumulation Test **6/5/29**

Maximum Pressure under Accumulation Test **185 lb/□"**

System of Draught **F.D., c.a., (Howden's)**

Can Boilers be worked separately? **yes.**

Makers of Plates **Jas. Dunlop & Co. Ltd.**  
*part sublet to J. Leishore & Sons Ltd.*

„ Stay Bars **Scottish Dr. Sheg Ltd.**

„ Rivets **David Colville & Son.**

„ Furnaces **John Marshall & Co.** @

Greatest Internal Diar. of Boilers **10'-1 3/8"**

„ „ Length „ **10'-10" (approx.)**

Square Feet of Heating Surface each Boiler **1068**

„ „ Grate „ „ **32**

No. of Safety Valves each Boiler **2** Rule Diar. **1 15/32"** Actual **1 3/4" H.L.**

Are the Safety Valves fitted with Easing Gear? **yes.**

No. of Pressure Gauges, each Boiler **1** No. of Water Gauges **1**

„ Test Cocks „ **3** „ Salinometer Cocks **1**

B.C. TEST

5146

320 lb.

W.P. 180 "

J.W.H.

4/4/29.



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Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " Approved Threads per Inch

" " " " in Boilers

Material of " " "

How are Stays Secured?

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " "

Width " " Doubling Strips "

Thickness of Middle Back End Plates Approved

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at " " " "

Diar. of Stays Approved Threads per Inch

" " in Boilers

Material "

Are Stays fitted with Nuts outside?

Thickness of Back End Plates at Bottom Approved

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

Pillars  
Pipes  
Cocks  
Value on ends.  
One

Steel.  
Butt  
Double

Machine  
Drill.  
5  
68

2  
Hand.  
3-49"  
2  
Machine.  
3-49"

16" x 12"  
5-21" x 2-82"

Threads per Inch

Thickness of Stays Approved

" " " " in Boilers

" " " " " in Boilers

Thickness of Front Tube Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes at spaces between Stacks of Tubes

" " " " " in Boilers

Thickness of Doublings in Stay Tubes at "

" " " " " in Boilers

See Report on  
S.S. "Samiadoc"

Thickness of Back Tube Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" " " " " in Boilers

Thickness of Stay Tubes

" " " " " in Boilers

Minimum Diam. of Tubes

" " " " " in Boilers

Thickness of Furnace Plates Approved

" " " " " in Boilers

Smallest outside Diam. of Furnaces

Length between Tube Plates



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Diar. of Stays Approved                      Threads per Inch

" " in Boilers

Material "

Thickness of Front Tube Plates Approved

" " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End

Thickness of Back Tube Plates Approved

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain "

Thickness of Stay Tubes

" Plain "

External Diar. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diar. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of " " Tops Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Tops

Threads per Inch

Diar. of Screwed Stays Approved

" " " in Boilers

Material "

Thickness of Combustion Chamber Sides Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Ends

Threads per Inch

Diar. of Stays Approved

" " " in Boilers

Material "

Thickness of Combustion Chamber Backs Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Heads

Diar. of Stays Approved

" " " in Boilers

Material "

Are all Screwed Stays fitted with Nuts inside C.C.?

Thickness of Combustion Chamber Bottoms

No. of Diapers over each Wing Chamber

Centre

Depth and Thickness of Diapers

Material of Diapers

Pitch of Stays in ends

No. of Stays in Ends

Pitch of Lower Manholes

Size of Lower Manholes

See Report on  
S.S. "Szczuadoc"



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Diar. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Sides

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Backs

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Are all Screwed Stays fitted with Nuts inside C.O.?

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " Centre "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

VERTICAL DONKEY BOILERS

Type

No. of Boilers

Height of Boiler Crown above the Grate

Are Jacket Covers Fitted or Omitted?

Internal Radius of Dished Bottom

Description of Gears in Boiler Crown

Diam. of Rivet Heads

Height of Ribbed Crown above the Grate

Are Ribbed Covers Fitted or Omitted?

Internal Radius of Dished Crown

No. of Crown Stays

External Diam. of Ribbed at Top

No. of Water Tubes

External Diam. of Water Tubes

Size of Manhole in Shell

Thickness of Combustion Chamber

Leading Buttress, end boiler

SUPERHEATERS

Description of Superheaters

When situated?

Which boiler are connected to superheaters?

Are superheaters set out of walls below and within?

Are all safety valves on each superheater?

Are all safety valves on each boiler?

Date when safety valves set

See Report on  
S.S. "Saruiadoc."



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## VERTICAL DONKEY BOILERS.

No. of Boilers Type

Greatest Int. Diar. Height

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished?

Internal Radius of Dished Ends Thickness of Plates

Description of Seams in Boiler Crowns

Diar. of Rivet Holes Pitch Width of Overlap

Height of Firebox Crowns above Fire Grate

Are Firebox Crowns Flat or Dished?

External Radius of Dished Crowns Thickness of Plates

No. of Crown Stays Diar. Material

External Diar. of Firebox at Top Bottom Thickness of Plates

No. of Water Tubes Ext. Diar. Thickness

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compensating Ring

Heating Surface, each Boiler Grate Surface

## SUPERHEATERS.

Description of Superheaters

Where situated?

Which Boilers are connected to Superheaters?

Can Superheaters be shut off while Boilers are working?

No. of Safety Valves on each Superheater Diar.

Are " " fitted with Easing Gear?

Date of Hydraulic Test Test Pressure

Date when Safety Valves set Pressure on Valves

## MAIN STEAM PIPES



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## MAIN STEAM PIPES.

No. of Lengths	2		
Material	Steel		
Brazed, Welded or Seamless	Welded		
Internal Diar.	3½"		
Thickness	¼"		
How are Flanges secured?	Sc'd & cap'd.		
Date of Hydraulic Test	30/4/29		
Test Pressure	540 lb/□"		
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diar.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diar.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			

LIST OF POWER PUMPS		EVAPORATORS	
Baltack	Vert. duplex, 9" + 11" by 10"		
G.S.	" 5" + 3½" by 6"		
Sanitary Horiz	" 4½" + 2½" by 4"		
F.W.	" " " " " "		
FEED WATER HEATERS.		FEED WATER FILTERS.	
all by [unclear]	all by [unclear]	all by [unclear]	all by [unclear]
180 M/A	180 M/A	180 M/A	180 M/A
420 M/A	420 M/A	420 M/A	420 M/A



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## EVAPORATORS.

No.	Type	Tons per Day
Makers		
Working Pressure	Test Pressure	Date of Test
Date of Test of Safety Valves under Steam		

## FEED WATER HEATERS.

No.	One	Type	Exhaust.	
Makers	Hocking & Co. Ltd.			@
Working Pressure	25 lb/□"	Test Pressure	Coils 450 lb/□" Shell 50 "	Date of Test

## FEED WATER FILTERS.

No.	One	Type	High pressure.	Size
Makers	Henry Watson Ltd.			@
Working Pressure	180 lb/□"	Test Pressure	450 lb/□"	Date of Test

## LIST OF DONKEY PUMPS.

Ballast Vert. duplex, 9" + 11" by 10".

G. S. " " 5" + 3½" " 6"

Sanitary Horiz. " 4½" + 2¾" " 4"

F. W. " " " " " "  
all by Dawson + Downie Ltd.



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## GENERAL CONSTRUCTION.

Have the Machinery and Boilers been constructed in accordance with the requirements of the Rules and the

Approved Plans? *Yes.*

If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor.

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and trustworthy? *Yes.*

Is the Workmanship throughout thoroughly satisfactory? *Yes.*

The above correctly describes the Machinery of the S.S.

as ascertained by *me* from personal examination

*J. Wood Harrington.*  
 Engineer Surveyor to the British Corporation for the  
 Survey and Registry of Shipping.

Fees—

MAIN BOILERS.		£	s.	d.
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
DONKEY BOILERS.				
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
		£	:	:
ENGINES.				
L.P.O.	Cub. ft.	:	:	
		£	:	:
Testing, &c. ...		:	:	
		£	:	:
Expenses ...		:	:	
Total ...	£	:	:	

It is submitted that this Report be approved,

*J. H. King*  
 Chief Surveyor.

Approved by the Committee for the Class of M.B.S.\* on the 26<sup>th</sup> June 1929

Fees advised

Fees paid

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 Secretary.

GENERAL CONSTRUCTION

Mrs. M. J. ...

U.S. ...

U.S. ...

Mrs. M. J. ...

U.S. ...



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It is submitted that this Report be approved.

*[Handwritten signature]*

Approved for the Committee for the Glass of M.S.S. on the 22 June 1933

Fairlake

*[Handwritten signature]* Harrington



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8/1/29 G.M.L.

31 "

18/2/29

26 "

1/3/29

4 "

6 "

8 " G.M.S.

11 "

14 "

18 "

21 "

25 "

27 "

2/4/29

4 "

9 "

19 "

30 "

6/5/29

9 "



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