

Barclay Curle & Co

No. 2284

635.

31/5/29

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

10/251

Report No. 2240 No. in Register Book 3654

FRANK WILKINSON

"Fairriver"

"Fairstream"

S.S.

Makers of Engines

Barclay Curle & Co. Ltd.

Works No.

635

Makers of Main Boilers

Same

Works No.

635

Makers of Donkey Boiler

-

Works No.

-

MACHINERY.



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No. 2284

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

S.S. " Fairriver.
~~Fairstream.~~ "

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

Works No. 635

Makers of Main Boilers do.

Works No. 635

Makers of Donkey Boiler —

Works No. —

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office. 31st May 1929.

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ~~Single~~ ~~Screw~~ ~~Steamer~~
" ~~Fairstream~~ ~~river~~ "

Official No.

Port of Registry

Registered Owners

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

27/5/29

First Visit

26/2/29

Last Visit

27/5/29

Total Visits

16



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RECIPROCATING ENGINES.

Works No. **635** No. of Sets **One** Description **Triple expansion vertical direct-acting 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 ~~each~~ L.P. Cylinder **24**

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.?

" " each Receiver? **Yes, except H.P.**

Type of H.P. Valves,

~~Let off~~ "

~~and~~ I.P.,

L.P. "

" Valve Gear

" Condenser

Yes.

Piston.

Slide.

"

Stevenson Link Motion.

Riveted Steel.

Cooling Surface **700** sq. ft.

Diameter of Piston Rods (plain part)

Screwed part (bottom of thread)

Material "

Diars. of Connecting Rods (smallest part)

Material

" Crosshead Gudgeons

Length of Bearing

Material

No. of Crosshead Bolts (each)

2

Diars. over Thrd.

Thrds. per inch

Material

" Crank Pin "

2

"

"

" Main Bearings

6

Lengths

" Bolts in each

2

Diars. over Thread

Threads per inch

Material

" Holding Down Bolts, each Engine

61

Diars.

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 Y. & R.M. Co. Ltd.

Piston " "

"

"

"

Crossheads,

Barclay, Curle & Co. Ltd.

Connecting Rods, Finished by

"

"

"

Piston " "

"

"

"

Crossheads,

"

"

"

Date of Harbour Trial

22/5/29

" Trial Trip

27/5/29.

Trials run at

Skelmorlie + Girth of Clyde.

Were the Engines tested to full power under Sea-going conditions?

Yes; in ballast.

If so, what was the I.H.P.?

724

Revs. per min.

89

Pressure in ~~each~~ Receiver,

H.P.

178 lbs.,

~~and~~ I.P.,

60 lbs.,

L.P.,

7 lbs.,

Vacuum,

26 ins.

Speed on Trial

8.52 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.

Revs per min.

Estimated Speed

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



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TURBO-ELECTRIC PROPELLING MACHINERY.

No. of Turbo-Generating Sets Capacity of each

Type of Turbines employed

Description of Generators

No. of Motors driving Propeller Shafting

Are the Propeller Shafts driven direct by the Motors or through Gearing?

Is Single or Double Reduction Gear employed?

Description of Motors

Diam. of 1st Reduction Pinion	}	Width	Pitch of Teeth
" 1st " Wheel			

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion	}	Width	Pitch of Teeth
" 2nd " Wheel			

Estimated Pressure per lineal inch

Revs. per min. of Generators at Full Power

"	"	Motors	"
"	"	1st Reduction Shaft	
"	"	2nd "	
"	"	Propellers at Full Power	

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial Knots. Propeller Revs. per min. S.H.P.

Makers of Turbines

" Generators

" Motors

" Reduction Gear

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.



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No. of Blades each Propeller *4* Fitted or Sold? *Fitted.*
 Material of Blades *C.I.* Boss *C.I.*
 Diam. of Propellers *12'-3"* Pitch *10'-9"* Surface (each) *48* S. ft²
 Coefficient of Displacement of Vessel at $\frac{3}{4}$ Moulded Depth

Crank Shafts Forged by	<i>Dennystown Forge.</i>	Material	<i>I. S.</i>
„ Pins „	„ „	„	„
„ Webs „	<i>Beardmore & Co.</i>	„	„
Thrust Shafts „	<i>Dennystown Forge.</i>	„	„
Intermed. „	„	„	„
Propeller „	„	„	„
Crank „ Finished by	<i>Barclay, Curle & Co.</i>		
Thrust „	„		
Intermed. „	„		
Propeller „	„		

STAMP MARKS ON SHAFTS.

<i>B.C.</i>
<i>11035</i>
<i>J.W.H.</i>
<i>9/4/29</i>

SKETCH OF PROPELLER SHAFT.

see Report on
S.S. "Sarniadoc"



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BOILERS

Works No. 635

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

Single or Double-ended Single.

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 15/4/29

" when Safety Valves set 22/5/29

Pressure at which Valves were set 185 lb/□"

Date of Accumulation Test 22/5/29

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 Wm Beardmore & Co. Ltd. ✓

" Stay Bars "Steel less" Scotland Ltd. ✓

" Rivets Rivet, Bolt & Nut Co. "

" Furnaces Wm Beardmore & Co. " @

Greatest Internal Diam. of Boilers 10'-1³/₈"

" " Length " 10'-10" (nearly)

Square Feet of Heating Surface each Boiler 1068

" " Grate " " 32

No. of Safety Valves each Boiler 2 Rule Diam. 1¹⁵/₃₂" Actual 1³/₄" 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.

5147

320 lb.

W.P. 180 "

C. M. S.

15/4/29



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Are the Water Gauges fitted direct to the Boiler Shells or mounted on Pillars?

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes?

Are these Pipes connected to Boilers by Cocks or Valves?

Are Blow-off Cocks or Valves fitted on Boiler Shells?

No. of Strakes of Shell Plating in each Boiler

„ Plates in each Strake

Thickness of Shell Plates Approved

„ „ in Boilers

Are the Rivets Iron or Steel?

Are the Longitudinal Seams Butt or Lap Joints?

Are the Butt Straps Single or Double?

Are the Double Butt Straps of equal width?

Thickness of outside Butt Straps

„ inside „

Are Longitudinal Seams Hand or Machine Riveted?

Are they Single, Double, or Treble Riveted?

No. of Rivets in a Pitch

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Front End Circumferential Seams

Are these Seams Hand or Machine riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Back End Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

Size of Manholes in Shell

Dimensions of Compensating Rings

B. C. TEST
 2142
 050 lb.
 W. 180
 S. M. D
 12/4/21

See Report on "Sarniadoc."



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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

See Report on "Sarizadoc"



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Diam. of Stays Approved Threads per Inch

" " in Boilers

Material "

see report on "Sarniadoc"

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 Diam. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diam. 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

see Report on "Sarniadoc"

see Report on "Sarniadoc"



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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

see Report on "Sarniadoc"

VERTICAL DONKEY BOILERS

No. of Boilers

Type

Height

Quantity for Trial

Height of Water Crown above Fire Grate

Are Boiler Crowns Flat or Inclined?

see Report on "Sarniadoc"

Thickness of Plates

Internal Radius of Jacket Ends

Description of Stays in Boiler Crowns

Width of Overlap

Pitch

Diam. of Rivet Holes

Height of Firebox Crown above Fire Grate

Are Firebox Crowns Flat or Inclined?

Thickness of Plates

Internal Radius of Jacket Crowns

Material

Diam.

No. of Crown Stays

Thickness of Plates

Bottom

External Diam. of Jacket at Top

Thickness

Riv. Diam.

No. of Water Tubes

Diameter of Water Tubes

Diam. of Manhole in Shell

Description of Combustion Gas Pass

Grate Surface

Heating Surface, each boiler

SUPERHEATERS

Description of Superheater

Type attached?

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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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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.	Type	Makers	Working Pressure	Test Pressure	Date of Test
One	Exhaust	Hocking & Co.	25 lb/□	Coils 450 lb/□ body 50 "	(covered by cladding.)

FEED WATER FILTERS.

No.	Type	Makers	Working Pressure	Test Pressure	Date of Test
One	H. P.	Henry Watson Ltd.	180 lb/□	450 lb/□	22/4/29.

LIST OF DONKEY PUMPS.

<u>Ballast.</u>	Vert. duplex,	9" and 11" by 10"
<u>G. S.</u>	"	5" " 3½" " 6"
<u>Sanitary.</u>	Horiz.	4½" " 2¾" " 4"
<u>F. W.</u>	"	" " " "

all by Dawson & Downie, Ltd.



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Positions of Auxiliary Switch Boards, with No. of Switches on each

see Report on S.S. "Sarmador."

Are Out-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits

On Aux. " " each Auxiliary Circuit

Wherever a Cable is reduced in size

To each Lamp Circuit

To both Flow and Return Wires of all Circuits when the Double-Wire System is adopted

Are the Fuses of Standard Sizes?

Are all Switches and Cut-outs constructed of Non-inflammable Material?

Are they placed so as to be always and easily accessible?

Smallest Single Wire used, No. S.W.G., Largest, No. S.W.G.

How are Conductors in Engine and Boiler Spaces protected?

" " Saloons, State Rooms, &c., " ?

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp

(2) " " passing through Bunkers or Cargo Spaces

(3) " " Deck Beams or Bulkheads

Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables is unimpaired? *no joints.*

Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces?

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface?

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously affected by them? *Yes.*

Have Tests been made to prove that this condition has been satisfactorily fulfilled? *"*

Has the Insulation Resistance over the whole system been tested? *"*

What does the Resistance amount to? *Ohms.*

Is the Installation supplied with a Voltmeter? *Yes.*

" " " an Ampere Meter *"*

Date of Trial of complete Installation *27/5/29* Duration of Trial *6 hours.*

Have all the requirements of Section 42 been satisfactorily carried out? *Yes.*



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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.

"FAIRRIVER"

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.

	£	s.	d.
H.S. Sq. ft.	:	:	
G.S. "	:	:	
	£	:	:

ENGINES.

	£	s.	d.
L.P.C. Cub. ft.	:	:	
	£	:	:
Testing, &c.	:	:	
	£	:	:
Expenses	:	:	
	£	:	:
Total ...	£	:	:

It is submitted that this Report be approved,

J. Foster King
 Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the 26th June 1929

Fees advised

Fees paid



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 Foundation
 Secretary.

GENERAL CONDITIONS

Form

All amounts are in thousands of dollars unless otherwise stated.

MAIN BODIES

M.S.	1	1	1
D.S.	1	1	1

POWER HOUSES

M.S.	1	1	1
D.S.	1	1	1

BOARDS

L.V.C.	1	1	1
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Testing fee

Expenses

Total

It is submitted that this report be approved.

[Handwritten signature]
Chief Engineer

Approved by the Committee for the Lines of M.S.S. on the 15th June 1911

[Handwritten signature]
Harrington



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26/2/29

1/3/29

11 "

14 "

18 "

21 "

25 "

27 "

2/4/29

9 "

10 " G.M.S.

30 "

16/5/29

19 "

22 " G.M.S.

27 "



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