

No. 1766

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. *1609* No. in Register Book *2852*

S.S. "CARLGARTH"

Makers of Engines

Smiths Dock Co. Ltd.

Works No. *225*

Makers of Main Boilers

Newthorn Leslie Co. Ltd.

Works No. *8649 No. 1.*

Makers of Donkey Boiler

Works No.

MACHINERY.



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010428-010439-0035

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. *1609* No. in Register Book *2852*

Received at Head Office

10th January 1923

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ~~Single Triple~~ *Single Triple* Screw *Carlgarth* *Tug.*

Official No.

Port of Registry *Liverpool*

Registered Owners

Rea & Living Co. Ltd.

Engines Built by

Smiths Dock Co. Ltd.

at

South Bank-on-Tees

Main Boilers Built by

Hawthornes Leslie Co.

at

Newcastle-on-Tyne.

Donkey

at

Date of Completion

12-22

First Visit *8-8-22*

Last Visit *5-12-22*

Total Visits *36*

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RECIPROCATING ENGINES.

Works No. *225* No. of Sets *1* Description *Triple expansion.*
Surface condensing. Three cranks.

No. of Cylinders each Engine *3* No. of Cranks *3*
 Diars. of Cylinders *14" 23" 39"* Stroke *27"*
 Cubic feet in each L.P. Cylinder *18.6*

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cyl.? *yes.*

" " each Receiver? *yes.*

Type of H.P. Valves, *Piston valve*

" 1st I.P. " *slide*

" 2nd I.P. "

" L.P. " *Slide*

" Valve Gear *Stephenson link motion.*

" Condenser *Surface (steel)*

Cooling Surface *900* sq. ft.

Diameter of Piston Rods (plain part) *4 1/4"* Screwed part (bottom of thread) *2.53"*

Material " *Mild steel*

Diar. of Connecting Rods (smallest part) *4"*

Material *W. Iron.*

" Crosshead Gudgeons *3 3/8"*

Length of Bearing *20 1/4"*

Material *Steel*

No. of Crosshead Bolts (each) *4*

Diar. over Thrd *1 3/4"*

Thrds. per inch *7*

Material *Steel.*

" Crank Pin " *2*

" *2 1/4"*

" *6*

" " "

" Main Bearings *6*

Lengths *8"*

" Bolts in each *2*

Diar. over Thread *2"*

Threads per inch *7*

Material *Steel.*

" Holding Down Bolts, each Engine *51*

Diar. *1 1/4"*

No. of Metal Chocks *-*

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

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside? *no.*

If not, how are they fitted? *✓*

Connecting Rods, Forged by

Smiths Wallenda Forge.

Piston " "

Smiths Skels.

Crossheads, " "

Smiths Wallenda Forge.

Connecting Rods, Finished by

Smiths Skels.

Piston " "

do

Crossheads, " "

do

Date of Harbour Trial

10-11-22

" Trial Trip

5-12-22

Trials run at

In River Meney.

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

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

688

Revs. per min. *108*

Pressure in 1st I.P. Receiver, *60.1* lbs., 2nd I.P., *✓*

lbs., L.P., *9.9* lbs., Vacuum, *25.1* ins.

Speed on Trial

4.4 under towing conditions.

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



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TURBINE ENGINES.

Works No. Type of Turbines

No. of H.P. Turbines No. of I.P. No. of L.P. No. of Astern

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

Is Single or Double Reduction Gear employed?

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 H.P. Turbines at Full Power S.H.P.

If the Conditions on Trial were such that full power was obtained give following estimated

" " L.P. " " " "

" " 1st Reduction Shaft

" " 2nd " "

" " Propeller Shaft

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

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

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

TURBO-ELECTRIC GENERATING MACHINERY DESCRIPTION OF INSTALLATION.

No. of Turbo-Generating Sets Capacity of each

Type of Turbines employed

Description of Generators

No. of Motors driving Propeller Shafts

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 " "

" Propeller 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.



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No. of Turbo-Generating Sets	Capacity of each
1	1000
2	1000
3	1000
4	1000
5	1000
6	1000
7	1000
8	1000
9	1000
10	1000
11	1000
12	1000
13	1000
14	1000
15	1000
16	1000
17	1000
18	1000
19	1000
20	1000
21	1000
22	1000
23	1000
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87	1000
88	1000
89	1000
90	1000
91	1000
92	1000
93	1000
94	1000
95	1000
96	1000
97	1000
98	1000
99	1000
100	1000

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

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

Estimated Pressure per lineal inch

Revol. 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 Revols. per min.	S.H.P.
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Makers of Turbines

Generators

Meters

Reduction Gear

Turbine Spindles forged by

Wheels forged or cast by

Reduction Gear Shafts forged by

Wheels forged or cast by

DESCRIPTION OF INSTALLATION

Length of After Bounce

Also, please provide for instruction the After Hearing with G-2

...the same time, the ...

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SHAFTING.

SKETCH OF CRANK SHAFT.

Are the Crank Shafts Built or Solid?

built.

No. of Lengths in each

3

Angle of Cranks

120°

Diar. by Rule

7.58"

Actual

7 3/4"

In Way of Webs

7 3/4"

" of Crank Pins

7 3/4"

Length between Webs

8 1/2"

Greatest Width of Crank Webs

1-3"

Thickness

4 3/4"

Least

" "

11 1/2"

" "

4 3/4"

Diar. of Keys in Crank Webs

1 1/4"

Length

3 1/8"

" Dowels in Crank Pins

1"

Length

3 1/2"

Screwed or Plain

plain.

No. of Bolts each Coupling

6

Diar. at Mid Length

17 1/8"

Diar. of Pitch Circle

11 3/4"

Greatest Distance from Edge of Main Bearing to Crank Web

1 1/8"

Type of Thrust Blocks

Horsehoe type.

No. " Rings

5

Diar. of Thrust Shafts at bottom of Collars

7 3/4"

No. of Collars

5

" " Forward Coupling

1-3 1/2"

At Aft Coupling

1 1/2"

Diar. of Intermediate Shafting by Rule

☒

Actual

☒

No. of Lengths

☒

No. of Bolts, each Coupling

☒

Diar. at Mid Length

☒

Diar. of Pitch Circle

☒

Diar. of Propeller Shafts by Rule

7.62"

Actual

8 1/8"

At Couplings

7 3/4"

Are Propeller Shafts fitted with Continuous Brass Liners?

steel liners in sections.

Diar. over Liners

9 1/8" 9 3/16"

Length of After Bearings

3-0

Of what Material are the After Bearings composed?

Cast iron.

Are Means provided for lubricating the After Bearings with Oil?

y/s.

" " to prevent Sea Water entering the Stern Tubes?

y/s.

If so, what Type is adopted?

Gland at after end.



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No. of Blades each Propeller *4* Fitted or Solid? *solid*
Material of Blades *Cast iron* Boss *Cast iron*
Diar. of Propellers *10'-0"* Pitch *9'-10 1/2"* Surface (each *3 1/2* S. ft.
Coefficient of Displacement of Vessel at $\frac{3}{4}$ Moulded Depth *.6*

Crank Shafts Forged by	Darlington Forge.	Material	I.P.
" Pins	"	"	I.P.
" Webs	"	"	I.P.
Thrust Shafts	James Carmichael & Co.	"	I.P.
Intermed. "	"	"	I.P.
Propeller	James Carmichael & Co.	"	I.P.
Crank	Finished by Darlington Forge.		
Thrust	James Carmichael & Co.		
Intermed. "	"		
Propeller	James Carmichael & Co.		

STAMP MARKS ON SHAFTS.

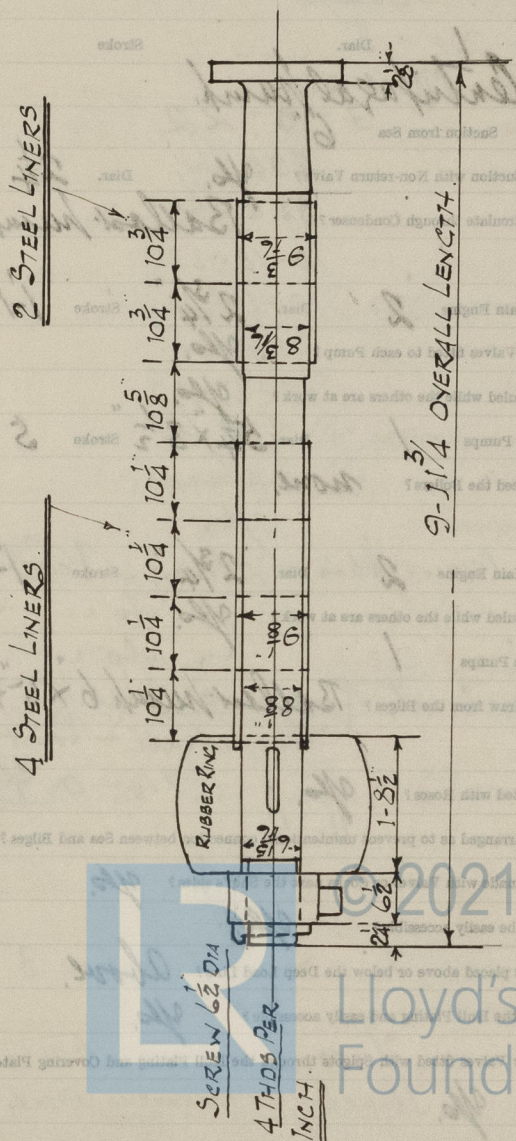
Crank Shaft

B. C.
no 7640
1-9-22
G. H. B.

Thrust & Tail Shafts

B.C.
22-9-22
J.M.P.

SKETCH OF PROPELLER SHAFT.



PUMPS, ETC.

No. of Air Pumps

1

Diar.

1-2"

Stroke

1-1/2"

Worked by Main or Independent Engines?

all H.P. engine.

No. of Circulating Pumps

Diar.

Stroke

Type of

"

Centrifugal pump.

Diar. of

"

Suction from Sea

6"

Has each Pump a Bilge Suction with Non-return Valve?

y/o.

Diar.

2 1/4"

What other Pumps can circulate through Condenser?

Ballast pump.

No. of Feed Pumps on Main Engine

2

Diar.

2 3/4"

Stroke

1-1/2"

Are Spring-loaded Relief Valves fitted to each Pump?

y/o.

Can one Pump be overhauled while the others are at work?

y/o.

No. of Independent Feed Pumps

1

Diar.

5 1/4 x 3 1/2"

Stroke

5"

What other Pumps can feed the Boilers?

none.

No. of Bilge Pumps on Main Engine

2

Diar.

2 3/4"

Stroke

1-1/2"

Can one Pump be overhauled while the others are at work?

y/o.

No. of Independent Bilge Pumps

1

What other Pumps can draw from the Bilges?

Ballast pump 6 x 5 x 6"

Are all Bilge Suctions fitted with Roses?

y/o.

Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges?

y/o.

Are all Sea Connections made with Valves or Cocks next the Ship's sides?

y/o.

Are they placed so as to be easily accessible?

y/o.

Are the Discharge Chests placed above or below the Deep Load Line?

Above.

Are they fitted direct to the Hull Plating and easily accessible?

y/o.

Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or Flanges

on the Outside?

y/o.

BOILERS.



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BOILERS.

Works No. 864.9 No. 1.
 No. of Boilers 1 Type Cylindrical multitubular.
 Single or Double-ended Single
 No. of Furnaces in each 3
 Type of Furnaces Morrison's
 Date when Plan approved 3-8-22
 Approved Working Pressure 200 lbs.
 Hydraulic Test Pressure 350 lbs.
 Date of Hydraulic Test 10-10-22
 „ when Safety Valves set 10-11-22
 Pressure at which Valves were set 206 lbs.
 Date of Accumulation Test 10-11-22
 Maximum Pressure under Accumulation Test 215 lbs.
 System of Draught natural
 Can Boilers be worked separately? ybs.
 Makers of Plates Messrs John Spencer, Newbarn
 „ Stay Bars do
 „ Rivets Messrs The Rivet, Nut & Bolt Co. Glasgow.
 „ Furnaces Marshall - Coatbridge
 Greatest Internal Diam. of Boilers 14-0 $\frac{13}{32}$
 „ „ Length „ 11-9
 Square Feet of Heating Surface each Boiler 2126 ft.
 „ „ Grate „ 60 ft.
 No. of Safety Valves each Boiler 2 Rule Diam. Actual 3"
 Are the Safety Valves fitted with Easing Gear? Yes
 No. of Pressure Gauges, each Boiler Two No. of Water Gauges One
 „ Test Cocks Three „ Salinometer Cocks One

Mark on Boiler.

B. C.
 N° 3909
 3.50 lbs.
 W.P. 200 lbs.
 H. N.
 10-10-22

Line of Compensation Rings.
 Flared $\frac{1}{32}$ " Port $2\frac{5}{64}$ "



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

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

Are these Pipes connected to Boilers by Cocks or Valves? *Cocks*

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

No. of Strakes of Shell Plating in each Boiler *1*

" Plates in each Strake *2*

Thickness of Shell Plates Approved *$1\frac{9}{32} \times \frac{1}{4}$ "*

" " in Boilers *$1\frac{9}{32} + \frac{1}{64}$*

Are the Rivets Iron or Steel? *Steel*

Are the Longitudinal Seams Butt or Lap Joints? *Butts*

Are the Butt Straps Single or Double? *Double*

Are the Double Butt Straps of equal width? *Yes*

Thickness of outside Butt Straps *$1\frac{1}{8}$ "*

" inside " *$1\frac{1}{8}$ "*

Are Longitudinal Seams Hand or Machine Riveted? *Machine*

Are they Single, Double, or Treble Riveted? *Treble*

No. of Rivets in a Pitch *5*

Diar. of Rivet Holes *$1\frac{3}{8}$ "* Pitch *$9\frac{3}{8}"$*

No. of Rows of Rivets in Centre Circumferential Seams *No Centre Seams*

Are these Seams Hand or Machine Riveted? *✓*

Diar. of Rivet Holes Pitch *✓*

No. of Rows of Rivets in Front End Circumferential Seams *2*

Are these Seams Hand or Machine riveted? *Hand*

Diar. of Rivet Holes *$1\frac{3}{8}"$* Pitch *$3.98"$*

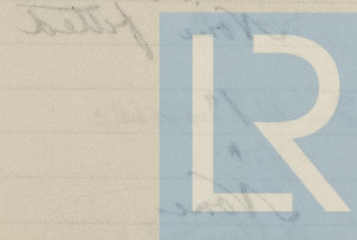
No. of Rows of Rivets in Back End Circumferential Seams *2*

Are these Seams Hand or Machine Riveted? *Machine*

Diar. of Rivet Holes *$1\frac{3}{8}"$* Pitch *$3.98"$*

Size of Manholes in Shell *17×13*

Dimensions of Compensating Rings *$2 - 9\frac{1}{2}$ long $\times 2 - 7$ " Broad*



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Thickness of End Plates in Steam Space Approved

 $\frac{11}{32}$

" " " " " in Boilers

Pitch of Steam Space Stays

 $23\frac{1}{2} \times 17$ Diar. " " " " Approved $3\frac{3}{4}$ Threads per Inch 6

" " " " " in Boilers

Material of " " "

Steel
Double nuts & washers

How are Stays Secured?

Diar. and Thickness of Loose Washers on End Plates

 $6\frac{1}{4}$ dia $\times \frac{1}{4}$ T_{se}

" " Riveted " " "

None

Width " " Doubling Strips "

"

Thickness of Middle Back End Plates Approved

 $\frac{7}{8}$ "

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

None

Pitch of Stays at

 $15 \times 7\frac{7}{8}$ "Diar. of Stays Approved $1\frac{7}{8}$ Threads per Inch 9

" " in Boilers

Material "

Steel

Are Stays fitted with Nuts outside?

nuts both ends.

Thickness of Back End Plates at Bottom Approved

 $\frac{7}{8}$ "

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

 $15 \times 7\frac{7}{8}$ "

Thickness of Doublings in " "

None fitted

Thickness of Front End Plates at Bottom Approved

1" "

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

None

Threads per Inch

Diar. of Stays Approved

" " " " " 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

" " " " " in Boilers

Thickness of Stay Tubes

" " " " " in Boilers

External Diam. of Tubes

Material

Thickness of Furnace Plates Approved

" " " " " in Boilers

Smallest outside Diam. of Furnaces

Length between Tube Plates

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Diag. 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 Diag. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diag. 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

1"

"

14 $\frac{1}{4}$ x 8 $\frac{3}{4}$ "

None

$\frac{3}{8}$

Yes.

$\frac{13}{16}$

"

9 x 8 $\frac{3}{4}$ "

4 $\frac{1}{2}$ x 4 $\frac{3}{8}$ "

$\frac{3}{8}$ + $\frac{5}{16}$ "

No 8 L.S.G.

3 $\frac{1}{4}$

Iron

$\frac{19}{32}$ "

"

3' - 3' - $\frac{11}{16}$ "

8' - 0"

2- 11" outside

$\frac{21}{32}$ "

"

9 $\frac{3}{8}$ x 7 $\frac{3}{4}$ "

Diag. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material "

Thickness of Combustion Chamber Plates Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Tops

Diag. " " Approved

" " " in Boilers

Material "

Thickness of Combustion Chamber Heads Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Heads

Diag. " " Approved

" " " in Boilers

Material "

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " " " " "

Material of Girders

No. of Stays in each

No. of Tubes each Boiler

Size of Tubes

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Diar. of Screwed Stays Approved $15/8$ Threads per Inch 9
 " " " in Boilers "

Material " " Steel

Thickness of Combustion Chamber Sides Approved $21/32$
 " " " " in Boilers

Pitch of Screwed Stays in C.O. Sides $9" \times 8 \frac{7}{8}"$
 Diar. " " Approved $15/8$ Threads per Inch 9

" " " in Boilers " "
 Material " " Steel

Thickness of Combustion Chamber Backs Approved Centre $23/32$ - Sides $21/32$
 " " " " in Boilers "

Pitch of Screwed Stays in C.O. Backs $9" \times 8"$
 Diar. " " Approved $15/8$ Threads per Inch 9

" " " in Boilers " "
 Material " " Steel

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

Yes
 $4/8"$

4
 3
 $9" \times (2) 7/8"$ plates
 Steel

3

244
 $16" \times 12"$

VERTICAL DONKEY BOILERS

No. of Boilers
 Type
 Greatest Int. Diam.
 Height of Boiler above 1st Girth
 Are Boiler Covers Flat or Dished?
 Internal Radius of Dished Boilers
 Description of Beams in Boiler Covers
 Dist. of Rivet Holes
 Height of Firebox Covers above 1st Girth
 Are Firebox Covers Flat or Dished?
 External Radius of Dished Covers
 No. of Crown Stays
 Material
 Thickness of Plates
 Horizontal Dist. of Firebox at Top
 Bottom
 Thickness
 Ext. Diam.
 No. of Water Tubes
 Material of Water Tubes
 Size of Manhole in Shell
 Dimensions of Compensation Plug
 Heating Surface, each Boiler
 (Gross Surface)

SUPERHEATERS



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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

Diarr. 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 Diarr. Material

External Diarr. of Firebox at Top Bottom Thickness of Plates

No. of Water Tubes Ext. Diarr. 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 Diarr.

Are " " fitted with Easing Gear?

Date of Hydraulic Test Test Pressure

Date when Safety Valves set Pressure on Valves

MAIN STEAM PIPES

No. of Lengths

Material

Joined, Welded or Seamed

Internal Diarr.

Thickness

How are Joints secured?

Date of Hydraulic Test

Test Pressure

No. of Lengths

Material

Joined, Welded or Seamed

Internal Diarr.

Thickness

How are Joints secured?

Date of Hydraulic Test

Test Pressure

No. of Lengths

Material

Joined, Welded or Seamed

Internal Diarr.

Thickness

How are Joints secured?

Date of Hydraulic Test

Test Pressure



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MAIN STEAM PIPES.

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

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diar.

Thickness

How are Flanges secured ?

Date of Hydraulic Test _____

Test Pressure

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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	

FEED WATER FILTERS.

No.	Type	Size
Makers		
Working Pressure	Test Pressure	Date of Test

LIST OF DONKEY PUMPS.

Feed Donkey by Henry Watson & Co.

5 1/2" X 3 1/2" X 5"

Ballast Donkey by Henry Watson & Co.

6" X 5" X 6"



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OTHER ARTICLES OF SPARE GEAR:—

6 Gauge flares + 1 doz Ring.
1 set Red pump valve.

REFRIGERATORS.

No. of Machines	Capacity of each	No. of Inlet or Outlet Pipes
Makers		
Description		
H.P. Piston Rings	I.P. Piston Rings	L.P. Piston Rings
Springs	Springs	Springs
No. of Steam Cylinders, each Machine	No. of Compressors	No. of Cranks
Particulars of Pumps in connection with Refrigerating Plant and whether worked by Refrigerating Machines or Independently		
Air Pump Discharge	Air Pump Valves	Air Pump Valves
Crank Shafts	Crank Pin Holes	Crosshead Links
Poppet Shafts	Poppets	Poppet Valves
Roller Tubes	Condenser Tubes	Condenser Circles

System of Refrigeration

Insulation

Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated

Spaces ?

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?

Are all Bilge, Sounding, and Air Pipes in Insulated Spaces properly insulated?

Are Thermometer Tubes so arranged that Water cannot enter and freeze in them?

Date of Test under Working Conditions

RESULTS OF TRIALS.

Articles of Spare Gear for Refrigerating Plant carried on board:—

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

Particulars of these Circuits	Number of Circuits	Number of Switches	Size of Circuit	Position of Switch	Position of Board	Position of Board	Position of Board
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Are Cut-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?

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?

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?

" " " an Ampere Meter?

Date of Trial of complete Installation

Duration of Trial

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

It is understood that the Report to be prepared

has been used as far as is possible in the construction of the ship, and that the same has been

Approved by the Committee of the Institution of Engineers and Shipbuilders



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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 all joints in Cables properly secured?

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?

Is the Installation supplied with a Voltmeter?

Are all the requirements of Section 12 been satisfactorily carried out?

Date of Trial of complete Installation

Have all the requirements of Section 12 been satisfactorily carried out?

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

"Carlgarth"

J. D. Stephenson
Engineer Surveyor to the British Corporation for the
Survey and Registry of Shipping.

Fees—

2126 sq ft [see sheets of particulars]
MAIN BOILERS.

H.S. *2120* Sq. ft. *14 : 3 : 0*

G.S. *60.5* " : :

DONKEY BOILERS.

H.S. ✓ Sq. ft. : :

G.S. ✓ " : :

£ : :

ENGINES.

L.P.C. *18.6* Cub. ft. *18 : 13 : 0*

£ : :

Testing, &c. ... : :

£ : :

Expenses ... : :

Total ... £ *82 : 16 : 0*

It is submitted that this Report be approved,

Walter King
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *21st February 1923*

Fees advised

17 - 11 - 22

Fees paid

22 - 11 - 22

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also see?

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