

No. 2019

25/4

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.



Report No.

1834

No. in Register Book

3144

S.S.

"WILLIAM C. WARREN"

Makers of Engines

A. Rowan & Co Ltd

Works No.

818

Makers of Main Boilers

A. Rowan & Co Ltd

Works No.

818

Makers of Donkey Boiler

Works No.

MACHINERY.



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005060-005070-0043

No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

Report No. 1834 No. in Register Book 3447

Received at Head Office

29th April 1925

Surveyor's Report on the New Engines, Boilers, and Auxiliary Machinery of the ^{Single Triple} ~~Twin Quadruple~~ Screw Steamship

"WILLIAM C. WARREN"

Official No.

Port of Registry

Glasgow.

Registered Owners

Eastern Steamship Co Ltd

Engines Built by

S. Rowan & Co Ltd

at

Glasgow.

Main Boilers Built by

S. Rowan & Co Ltd

at

Glasgow.

Donkey

at

Date of Completion

4/25

First Visit

9/2/24

Last Visit

18/4/25

Total Visits

34

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RECIPROCATING ENGINES.

Works No. *818* No. of Sets *One* Description *Triple Expansion*

inverted cylinder, Surface condensing.

No. of Cylinders each Engine *3* No. of Cranks *3*
 Diars of Cylinders *14", 28½", and 44"* Stroke *33"*

Cubic feet in each L.P. Cylinder *33.1*

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr? *On H.P.; 1.P. & L.P. bottom only*

" " " each Receiver? *1.P. & L.P.*

Type of H.P. Valves, *Piston valves with inside steam*

" 1st I.P., *Andrews & Cameron balanced*

" 2nd I.P., *—*

" L.P. *" Double-ported "D" slide valve*

" Valve Gear *Stephenson's link motion*

" Condenser *Surface* Cooling Surface *1000* sq. ft.

Diameter of Piston Rods (plain part) *4½"* Screwed part (bottom of thread) *3½" aft.*

Material *" Mild Steel*

Diar. of Connecting Rods (smallest part) *4¼"* Material *Mild Steel*

" Crosshead Gudgeons *5"* Length of Bearing *7½"* Material *" "*

No. of Crosshead Bolts (each) *2* Diar. over Thrd. *2½"* Thrds. per inch *4* Material *Steel*

" Crank Pin " *2* " *2½"* " *4* " *"*

" Main Bearings *6* Lengths *9"*

" Bolts in each *2* Diar. over Thread *2"* Threads per inch *4"* Material *Steel*

" Holding Down Bolts, each Engine *46* Diar. *1"* No. of Metal Chocks *46*

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 *S. Rowan & Co Ltd*

Piston " " " " " "

Crossheads, " " " " " "

Connecting Rods, Finished by *S. Rowan & Co Ltd*

Piston " " " " " "

Crossheads, " " " " " "

Date of Harbour Trial *16/4/25*

" Trial Trip *18/4/25*

Trials run at *Skelmorlie*

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

If so, what was the I.H.P.? *1212*

Revs. per min. *1016*

Pressure in 1st I.P. Receiver, *85* lbs., 2nd I.P., *—* lbs., L.P., *19½* lbs., Vacuum, *26* ins.

Speed on Trial *9.792*

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

Builders' estimated I.H.P. *1000*

Revs. per min. *87*

Estimated Speed



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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

" 1st " Wheel

Width

Pitch of Teeth

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion

" 2nd " Wheel

Width

Pitch of Teeth

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

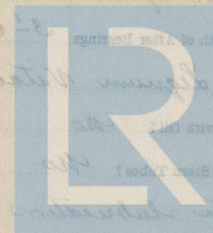
Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.



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SHAFTING.

Are the Crank Shafts Built or Solid?

Built

No. of Lengths in each

One

Angle of Cranks

*120°*Diar. by Rule *8.956"*

Actual

9"

In Way of Webs

9 1/4"

" of Crank Pins

9"

Length between Webs

9"

Greatest Width of Crank Webs

14 1/4"

Thickness

5 7/8"

Least

"

"

13 1/8"

"

5 7/8"

Diar. of Keys in Crank Webs

1 1/2" dowels

Length

3 1/2"

" Dowels in Crank Pins

1"

Length

2 1/2"

Screwed or Plain

Plain

No. of Bolts each Coupling

6

Diar. at Mid Length

2 1/8"

Diar. of Pitch Circle

14 3/4"

Greatest Distance from Edge of Main Bearing to Crank Web

about 1/2"

Type of Thrust Blocks

Horse-shoe

No. " Rings

4

Diar. of Thrust Shafts at bottom of Collars

9 1/4"

No. of Collars

4

" " Forward Coupling

9"

At Aft Coupling

*8 5/8"*Diar. of Intermediate Shafting by Rule *8.508"*

Actual

No. of Lengths

No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

Diar. of Propeller Shafts by Rule *10.18"*

Actual

10.375"

At Couplings

9"

Are Propeller Shafts fitted with Continuous Brass Liners?

Yes.

Diar. over Liners

1 1/2" aft 1 1/8" fwd

Length of After Bearings

3'-6"

Of what Material are the After Bearings composed?

Legnum Vitae

Are Means provided for lubricating the After Bearings with Oil?

No

" " to prevent Sea Water entering the Stern Tubes?

No

If so, what Type is adopted?

Sea water lubrication

SKETCH OF CRANK SHAFT.

*Same as No 813, 2 814.**S/S NORMAN B. HATCHERSON.**S/S JOHN B. RICHARDS.*

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No. of Blades each Propeller *4* Fitted or Solid? *Fitted*
 Material of Blades *Cast Steel* Boss *Cast Iron*
 Diam. of Propellers *12'6"* Pitch *12'0"* Surface (each) *47* S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth *184*

Crank Shafts Forged by *Henschel & Sohn, Bochum*
Wickes & Son, Sheffield Material *I. S.*
 " Pins " " " " " "
 " Webs " " " " " "
 Thrust Shafts " " " " " "
 Intermed. " " *None* " " " "
 Propeller " " " " " "
 Crank " Finished by *S. Rowan & Co Ltd*
 Thrust " " " " " "
 Intermed. " " " " " "
 Propeller " " " " " "

STAMP MARKS ON SHAFTS.

B. C.
 N° 3262
 G. H. L.
 26/2/25.

1 CRANK SHAFT

1 THRUST "

1 PROPELLER "

SKETCH OF PROPELLER SHAFT.

Same as No 813 & 814.
 S/S "NORMAN B. MACPHERSON"
 S/S "JOHN B. RICHARDS"



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PUMPS, ETC.

No. of Air Pumps *One* Diar. *13"* Stroke *18"*

Worked by Main or Independent Engines? *by links from H.P. engine*
Edwards type

No. of Circulating Pumps *One* Diar. *9 1/2"* Stroke *18"*

Type of " *double-acting plunger.*

Diar. of " Suction from Sea *6"*

Has each Pump a Bilge Suction with Non-return Valve? *yes* Diar. *6"*

What other Pumps can circulate through Condenser? *Auxiliary circulating and*
ballast pumps.

No. of Feed Pumps on Main Engine *2* Diar. *2 1/2"* Stroke *18"*

Are Spring-loaded Relief Valves fitted to each Pump? *yes.*

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

No. of Independent Feed Pumps *—* Diar. *—* Stroke *Injector.*

What other Pumps can feed the Boilers? *General donkey (Wain's)*

No. of Bilge Pumps on Main Engine *2* Diar. *3"* Stroke *18"*

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

No. of Independent Bilge Pumps *None*

What other Pumps can draw from the Bilges? *Ballast pump, and auxiliary*
circulating pump.

Are all Bilge Suctions fitted with Roses? *yes, except straight pipes in engine room*

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

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

Are they placed so as to be easily accessible? *yes*

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

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

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

on the Outside? *yes.*

BOILERS

No. of Boilers *2*

No. of Tubes *2*

Single or Double-ended *Single*

No. of Passages in each *2*

Type of Passages *Horizontal*

Date when plan approved *12/1/18*

Approved Working Pressure *120 lbs.*

Its design Test Pressure *150 lbs.*

Date of Hydraulic Test *28/3/18*

When Safety Valves set *120 lbs.*

Pressure at which Valves were set *120 lbs.*

Date of Accumulation Test *14/4/18*

Maximum Pressure under Accumulation Test *120 lbs.*

System of Drafting *Horizontal*

Can Boilers be worked separately? *yes*

Material of Plates *Steel*

Weight of Plates *11 lb.*

Thickness of Plates *11 lb.*

Material of Tubes *Steel*

Thickness of Tubes *11 lb.*

Material of Flanges *Steel*

Thickness of Flanges *11 lb.*

Material of Bolts *Steel*

Thickness of Bolts *11 lb.*

Material of Nuts *Steel*

Thickness of Nuts *11 lb.*



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BOILERS.

Works No. *818*

No. of Boilers *2* Type *Cylindrical multitubular*

Single or Double-ended *Single*

No. of Furnaces in each *Two*

Type of Furnaces *Beighton*

Date when Plan approved *13/9/24*

Approved Working Pressure *180 lbs/°*

Hydraulic Test Pressure *320 lbs/°*

Date of Hydraulic Test *28/3/25*

„ when Safety Valves set *14/4/25*

Pressure at which Valves were set *185 lbs.*

Date of Accumulation Test *14/4/25*

Maximum Pressure under Accumulation Test *3 lbs/°*

System of Draught *Howden's forced draught.*

Can Boilers be worked separately? *Yes.*

Makers of Plates *Friedrich Krupp, Essen* ✓

„ Stay Bars *Lanarkshire Steel Co Ltd* ✓

„ Rivets *N.W. Rivet, Bolt & nut Co Ltd*

„ Furnaces *John Marshall & Co* ✓

Greatest Internal Diam. of Boilers *11' 10"*

„ „ Length „ *10' 10 1/8"*

Square Feet of Heating Surface each Boiler *1425*

„ „ Grate „ „ *36.65*

No. of Safety Valves each Boiler *2* Rule Diam. *2 3/8"* Actual *2 1/2"*

Are the Safety Valves fitted with Easing Gear? *Yes*

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

„ Test Cocks *3* „ Salinometer Cocks *One*

TEST MARKS ON BOILERS.

B. C.
 No 4908
 TEST PRESS 320 lbs
 WORK. „ 180 lbs
 G. H. L.
 28/3/25



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

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

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

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

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

Scantlings as Nos 813 & 814

1/5 "NORMAN B. MACPHERSON"

1/5 "JOHN B. RICHARDS"



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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

Scantlings as Nos 8/13 & 8/14.



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Diar. of Stays Approved Threads per Inch

" " in Boilers

Material " " in Boilers

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 " " in Boilers

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

*Scantlings as Nos 813 & 814.**S/S "NORMAN" B. MACPHERSON**S/S "JOHN" B. RICHARDS*

Threads per Inch

Diar. of Screwed Stays Approved

" " " in Boilers

Material " " in Boilers

Thickness of Combustion Chamber Stays Approved

" " " in Boilers

Pitch of screw stays in C.C. Stays

Threads per Inch

Diar. " " Approved

" " " in Boilers

Material " " in Boilers

Thickness of Combustion Chamber Backs Approved

" " " in Boilers

Pitch of screw stays in C.C. Backs

Threads per Inch

Diar. " " Approved

" " " in Boilers

Material " " in Boilers

Are all screw stays fitted with Nuts inside C.C.?

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 Wing

No. of Lower Stays

Size of Lower Stays



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Diam. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides

Diam. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Diam. " " Approved Threads per Inch

" " " 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

" " " Centre "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

Scantlings as Nos 8/3 & 8/4.

VERTICAL DONKEY BOILERS

No. of Boilers
Type
Greatest Int. Diam.
Height
Height of Boiler Crown above Fire Grate
Are Boiler Crowns Flat or Dishd?
Internal Radius of Dishd Boilers
Description of Booms in Boiler Crowns
Diam. of Flues Boilers
Height of Firebox Crown above Fire Grate
Are Firebox Crowns Flat or Dishd?
Internal Radius of Dishd Crowns
Diam. of Crown Stays
Greatest Diam. of Firebox at Top
No. of Water Tubes
Material of Water Tubes
Size of Manhole in Shell
Dimensions of Compensating Ring
Heating Surface, each Boiler
Grate Surface

SUPERHEATERS

Description of Superheaters

When fitted?

What Boilers are connected to Superheaters?

Are Superheaters set with off with Boilers are working?

No. of Safety Valves on each Superheater

Diam. of Safety Valve on each Superheater

Diam. of Flue in each Superheater

Grate Surface of each Superheater



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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

No. of Pipes

Material

Internal Diar.

Thickness

How are Pipes secured?

Date of Hydraulic Test

Test Pressure

No. of Pipes

Material

Internal Diar.

Thickness

How are Pipes secured?

Date of Hydraulic Test

Test Pressure



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MAIN STEAM PIPES.

No. of Lengths	2
Material	Steel
Brazed, Welded or Seamless	Seamless
Internal Diam.	4"
Thickness	1/4"
How are Flanges secured?	Screwed with rambling thread
Date of Hydraulic Test	10/4/25
Test Pressure	540 lbs/sq"

No. of Lengths	
Material	
Brazed, Welded or Seamless	
Internal Diam.	
Thickness	
How are Flanges secured?	
Date of Hydraulic Test	
Test Pressure	

No. of Lengths	
Material	
Brazed, Welded or Seamless	
Internal Diam.	
Thickness	
How are Flanges secured?	
Date of Hydraulic Test	
Test Pressure	

LIST OF EVAPORATORS.

No.	Type	Location	Date of Test	Test Pressure
1	Horizontal	Boiler Room	10/4/25	540 lbs/sq"
2	Vertical	Boiler Room	10/4/25	540 lbs/sq"
3	Horizontal	Boiler Room	10/4/25	540 lbs/sq"
4	Vertical	Boiler Room	10/4/25	540 lbs/sq"
5	Horizontal	Boiler Room	10/4/25	540 lbs/sq"
6	Vertical	Boiler Room	10/4/25	540 lbs/sq"
7	Horizontal	Boiler Room	10/4/25	540 lbs/sq"
8	Vertical	Boiler Room	10/4/25	540 lbs/sq"
9	Horizontal	Boiler Room	10/4/25	540 lbs/sq"
10	Vertical	Boiler Room	10/4/25	540 lbs/sq"



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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.	1	Type	Surface heating
Makers	Henry Watson, Newcastle on Tyne		
Working Pressure	Shell 15 lbs Tubes 18.5	Test Pressure	Shell 15.0 Tubes 43.2
Date of Test	Shell 24/2/25 Tubes 5/3/25		

FEED WATER FILTERS.

No.	1	Type	Suction Filter	Size
Makers	Henry Watson, Newcastle on Tyne			
Working Pressure		Test Pressure		Date of Test

LIST OF DONKEY PUMPS.

Ballast Pump: - Rowan's

Suctions: - Sea, tanks, bilges

Discharges: - Condenser, tanks, deck, overboard.

Aux. Circulating Pump: - Rowan's

Suctions: - Sea, bilge

Discharges: - Overboard, condenser, culinary tank

Aux. Feed Pump: - Weir's

Suction: - Tank, hotwell or condenser, boilers.

Discharges: - Heater, or any feed range, ash gasket
- deck or overboard.

A steam injector is also fitted to the aux.
feed range for boilers.



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OTHER ARTICLES OF SPARE GEAR:—

4 prop. blade studs & nuts. used 20
Quantity bolts, nuts, round bar, iron & brass sheets etc.

REFRIGERATORS.

No. of Machines

Capacity of each

Makers

Description

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

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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REGULATING EQUIPMENT

No. of Machines	Capacity of each	No. of Machines	Capacity of each	Comments
No. of Engines	Capacity of each	No. of Engines	Capacity of each	
Description				

No. of Steam Engines, each Machine

No. of Condensers

No. of Boilers

Particulars of Changes in connection with Regulating Plant and whether carried on board or independent

or independent

Details of Regulating Plant

Description

Are there any other regulating means in connection with the engine and boiler plant?

Articles of Spare Gear for Regulating Plant carried on board

Are there any other regulating means in connection with the engine and boiler plant?

Are there any other regulating means in connection with the engine and boiler plant?

Are there any other regulating means in connection with the engine and boiler plant?

Date of Test under Working Conditions

ELECTRIC LIGHTING.

Installation Fitted by

Claude Hamilton Ltd

No. and Description of Dynamos

One direct coupled compound dynamo

Makers of Dynamos

Newton Ltd

Capacity

,,

37

Amperes, at

110

Volts,

600

Revs. per Min.

Current Alternating or Continuous

Continuous

Single or Double Wire System

Double

Position of Dynamos

Starboard side engine room

Main Switch Board

"

"

"

"

No. of Circuits to which Switches are provided on Main Switch Board

4

Particulars of these Circuits:—

Circuit.	Number of Lights.	Candle Power.	Current Required. Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
(1) Accom. aft.	34	16	12	7/036	1 EE.	100%	600 meg.
(2) " fore	42	"	15	"	"	"	"
(3) Engine Room	20	"	7.5	"	"	"	"
(4) Spare							

Total No. of Lights

96

No. of Motors driving Fans, &c.

None

No. of Heaters

None

Current required for Motors and Heaters

—



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Positions of Auxiliary Switch Boards, with No. of Switches on each *None.*

Particulars of these Circuits—	No. of Lamps	Kind of Lamp	Current Rating	Size of Conductor	Kind of Conductor	Current Rating	Size of Conductor	Kind of Conductor	Current Rating	Size of Conductor
(1) Main Circuits	10	10	10	10	10	10	10	10	10	10
(2) Aux. Circuits	10	10	10	10	10	10	10	10	10	10
(3) Lamp Circuits	10	10	10	10	10	10	10	10	10	10
(4) Other Circuits	10	10	10	10	10	10	10	10	10	10

Are Out-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits *Yes.*

On Aux. " " each Auxiliary Circuit —

Wherever a Cable is reduced in size *Yes*

To each Lamp Circuit *Yes*

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

Are the Fuses of Standard Sizes? *Yes.*

Are all Switches and Out-outs constructed of Non-inflammable Material? *Yes.*

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

Smallest Single Wire used, No. *3/019* S.W.G., Largest, No. *7/064* S.W.G.

How are Conductors in Engine and Boiler Spaces protected? *Lubing*

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

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp *Lubing*

(2) " passing through Bunkers or Cargo Spaces *Lubing*

(3) " " Deck Beams or Bulkheads *Lubing.*

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? *Yes*

Has the Insulation Resistance over the whole system been tested? *18 meg. Yes*

What does the Resistance amount to? *18 meg.*

Ohms,

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

" " " an Ampere Meter? *Yes.*

Date of Trial of complete Installation *18/4/25* Duration of Trial *6 hours.*

Have all the requirements of Section 42 been satisfactorily carried out? *Yes - see page 38.*



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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, except as below.

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

Surveyor.

*V.I.R. braided cable in conduits fitted in machinery spaces in lieu of lead covered.
(see book 2009; S.S. 247.)
Sanctioned by 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. *"WILLIAM C WARREN"*

as ascertained by ^{me} from personal examination

Geo. M. Luke.
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 ...	:	:
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Total ...	£	:	:
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It is submitted that this Report be approved.

Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the

Fees advised

Fees paid



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Secretary.

best by use

Visits.

9/12/24.

157

16 "

17 "

18 "

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30 "

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