

21 AUG 1924
No. 1573

Heinrich Hugo Shunnes

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 1479 No. in Register Book 2669

S.S.

Mayari

Makers of Engines

Workman, Clark & Co. Ltd.

Works No. 454

Makers of Main Boilers

Workman, Clark & Co. Ltd.

Works No. 454

Makers of Donkey Boiler

duplicate No 3446

Works No. —

MACHINERY.



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010311-010321-0163

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book *2669*

Received at Head Office *21st August 1921*

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

Mayari

Official No. *144247* Port of Registry *Glasgow*
Registered Owners *Unifruiteo Steamship Co. Ltd*

Engines Built by *Workman, Clark & Co. Ltd.*
at *Belfast*

Main Boilers Built by *Workman, Clark & Co. Ltd.*
at *Belfast.*

Donkey „ „

at

Date of Completion

First Visit *1.9.20* Last Visit *3.8.21* Total Visits *52*

RECIPROCATING ENGINES.

Works No. *454* No. of Sets *1* Description *Triple*
Surface Condensing

No. of Cylinders each Engine *3* No. of Cranks *3*
 Diars. of Cylinders *20 1/2", 34", 57"* Stroke *45"*
 Cubic feet in each L.P. Cylinder *66.4*
 Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr? *Yes*
 " " each Receiver? *J.P. & L.P.*
 Type of H.P. Valves, *Piston*
 " 1st L.P. " *Cameron*
 " 2nd L.P. " *—*
 " L.P. " *Double ported*
 " Valve Gear *Stephenson Link Motion*
 " Condenser *Uniflux* Cooling Surface *2000* sq. ft.
 Diameter of Piston Rods (plain part) *6"* Screwed part (bottom of thread) *4.43*
 Material " *S.S.*
 Diar. of Connecting Rods (smallest part) *5 3/4* Material *S.S.*
 " Crosshead Gudgeons *6 1/4"* Length of Bearing *6"* Material *S.S.*
 No. of Crosshead Bolts (each) *4* Diar. over Thrd. *2 1/2"* Thrds. per inch *4* Material *S.S.*
 " Crank Pin " " *2* " *3 1/2"* " *3 1/4* " *S.S.*
 " Main Bearings *6* Lengths *12 1/2, 13, 13, 14 1/2, 14 1/2*
 " Bolts in each *2* Diar. over Thread *3"* Threads per inch *3 1/2* Material *S.S.*
 " Holding Down Bolts, each Engine *134* Diar. *1 3/8* No. of Metal Chocks *67*
 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 *Messrs Workman Black & Co.*

Piston " " " "

Crossheads, " " " "

Connecting Rods, Finished by " "

Piston " " " "

Crossheads, " " " "

Date of Harbour Trial *28.4.21*" Trial Trip *3.5.1921*Trials run at *Belfast Lough.*

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

If so, what was the I.H.P.? *1580* Revols. per min. *95*Pressure in 1st *MP* Receiver, *50* lbs., 2nd L.P., *7* lbs., L.P., *✓* lbs., Vacuum, *28* ins.Speed on Trial *10.5*

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

Builders' estimated I.H.P. *as above* Revols. 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?

Revs. per min. of H.P. Turbines at Full Power

"	"	L.P.	"	"
"	"	L.P.	"	"
"	"	1st Reduction Shaft		
"	"	2nd	"	
"	"	Propeller Shaft		

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial

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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TURBINE ENGINEER

No. of H.P. Turbines
No. of L.P.
No. of A.P.

Are the Propeller Shafts driven direct by the Turbine or through Gearings?

Is Single or Double Reduction Gear employed?

Describe per table of H.P. Turbine in full power

L.P.

L.P.

Is Reduction Gear

Shaft

Propeller Shaft

Total Shaft Horse Power

Rate of Harbours Trial

Time Trial

Time Trial

Speed of Trial

Turbine Shafts driven by

Which kind of gear?

Reduction from shaft 1 gear by

It was found on test by

DESCRIPTION OF INSTALLATION

TURBO-ELECTRIC PROPELLING MACHINERY

No. of Turbine-Generating Sets

Capacity of each

Type of Turbine employed

Description of Connections

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

Is Single or Double Reduction Gear employed?

Describe per table of H.P. Turbine in full power

L.P.

No. of Motors driving Propeller Shafts

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

Is Single or Double Reduction Gear employed?

Description of Motors

Describe per table of Connections of Trial Power

Motor

Propeller

Total Shaft Horse Power

Rate of Harbours Trial

Time Trial



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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

Revs. per min. of Generators at Full Power

" " Motors "

" " Propellers "

Total Shaft Horse Power "

Date of Harbour Trial

" Trial Trip

Trials run at

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



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SHAFTING.

Are the Crank Shafts Built or Solid?

Built

No. of Lengths in each

3

Angle of Cranks

120°

Diar. by Rule

Actual

12"

In Way of Webs

12"

" of Crank Pins

12"

Length between Webs

13 1/4"

Greatest Width of Crank Webs

22 3/4"

Thickness

7 3/4"

Least

*Dowels**17 1/2"*

"

*4 3/4"*Diar. of ~~webs~~ in Crank Webs*2 1/4"*

Length

5 3/4"

" Dowels in Crank Pins

1 1/2"

Length

4 1/4"

Screwed or Plain

Plain.

No. of Bolts each Coupling

6

Diar. at Mid Length

2 7/8"

Diar. of Pitch Circle

18 1/4"

Greatest Distance from Edge of Main Bearing to Crank Web

3 1/8"

Type of Thrust Blocks

multi-collar

No. " Rings

for 5 collars

Diar. of Thrust Shafts at bottom of Collars

12"

No. of Collars

5

" " Forward Coupling

12"

At Aft Coupling

12"

Diar. of Intermediate Shafting by Rule

Actual

11 3/8"

No. of Lengths

5

No. of Bolts, each Coupling

6

Diar. at Mid Length

2 7/8"

Diar. of Pitch Circle

18 1/4"

Diar. of Propeller Shafts by Rule

Actual

13 3/8"

At Couplings

23 1/2"

Are Propeller Shafts fitted with Continuous Brass Liners?

Yes

Diar. over Liners

14 3/4"

Length of After Bearings

2'-10"

Of what Material are the After Bearings composed?

Brass + Lignum Vitae.

Are Means provided for lubricating the After Bearings with Oil?

—

" " to prevent Sea Water entering the Stern Tubes?

—

If so, what Type is adopted?

—

SKETCH OF CRANK SHAFT.

HP 1/2 MP 5-10 Centres 0-21
MP 1/2 LP - 6-6



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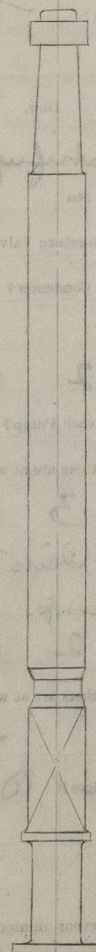
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No. of Blades each Propeller *4* Fitted or Solid? *Fitted*
 Material of Blades *Brass* Boss *Cast Iron*
 Diam. of Propellers *15'-0"* Pitch *14'-3"* Surface (each) *70* S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth *.727*

Crank Shafts Forged by *Walter Somers & Co.* Material *Steel*
 " Pins " " " " "
 " Webs " " " " "
 Thrust Shafts " " " " "
 Intermed. " " " " "
 Propeller " " " " "
 Crank " Finished by *Wankman, Clark & Co.*
 Thrust " " " " "
 Intermed. " " " " "
 Propeller " " " " "

STAMP MARKS ON SHAFTS.

SKETCH OF PROPELLER SHAFT.



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PUMPS, ETC.

No. of Air Pumps 1 Diar. 19" Stroke 24"

Worked by Main or Independent Engines? Main

No. of Circulating Pumps 1 Diar. Engine Direct. Stroke $7\frac{1}{2}$ "

Type of " Centrifugal

Diar. of " Suction from Sea 12"

Has each Pump a Bilge Suction with Non-return Valve? Yes Diar. 8"

What other Pumps can circulate through Condenser? Ballast Dky.

No. of Feed Pumps on Main Engine 2 Diar. 4" Stroke 24"

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 3 Diar. Stroke

What other Pumps can feed the Boilers? Weirs Pumps, General Service Pump

Auxiliary Feed Pump.

No. of Bilge Pumps on Main Engine 2 Diar. 4" Stroke 24"

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

No. of Independent Bilge Pumps —

What other Pumps can draw from the Bilges? Ballast Dky.

Are all Bilge Suctions fitted with Roses? Yes

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

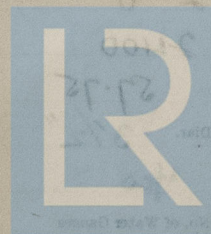
Are the Discharge Chests placed above or below the Deep Load Line? Below

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 Planges

on the Outside? Yes.

BOILERS



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BOILERS.

Works No. 454

No. of Boilers 2 Type Multitubular

Single or Double-ended Single

No. of Furnaces in each Three

Type of Furnaces Deighton

Date when Plan approved 1-12-19

Approved Working Pressure 200 lbs.

Hydraulic Test Pressure 350

Date of Hydraulic Test 7-1-20

" when Safety Valves set 28/4/21

Pressure at which Valves were set 28/4/21

Date of Accumulation Test 28/4/21

Maximum Pressure under Accumulation Test

System of Draught Horizontal

Can Boilers be worked separately? Yes

Makers of Plates D. Colville & Sons Motherwell

(Wrappers) J. Spencer & Sons, Newburn

" Stay Bars Steel Co. of Scotland.

" Rivets Rivet, Bolt & Nut Co. Glasgow

" Furnaces Deighton's Patent & Co. Ltd

Greatest Internal Diam. of Boilers 14'-6"

" " Length " 12'-0"

Square Feet of Heating Surface each Boiler 2400

" " Grate " " 57.75

No. of Safety Valves each Boiler 2

Are the Safety Valves fitted with Easing Gear? Yes

No. of Pressure Gauges, each Boiler 1

No. of Water Gauges 1

" Test Cocks " 3

" Sallinometer Cocks 1

Tested 28/4/21

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

on pillars
by pipes

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?

cocks
Valves

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

No. of Strakes of Shell Plating in each Boiler

1

" Plates in each Strake

2

Thickness of Shell Plates Approved

$1\frac{5}{16}$ "

" " in Boilers

$1\frac{7}{16}$ "

Are the Rivets Iron or Steel?

Steel

Are the Longitudinal Seams Butt or Lap Joints?

Butt

Are the Butt Straps Single or Double?

Double

Are the Double Butt Straps of equal width?

Yes

Thickness of outside Butt Straps

1"

" 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

Diam. of Rivet Holes

$1\frac{1}{32}$ "

Pitch

$9\frac{1}{4}$ "

No. of Rows of Rivets in Centre Circumferential Seams

-

Are these Seams Hand or Machine Riveted?

-

Diam. of Rivet Holes

Pitch

No. of Rows of Rivets in Front End Circumferential Seams

2

Are these Seams Hand or Machine riveted?

Hand

Diam. of Rivet Holes

$1\frac{3}{16}$ "

Pitch

3.8247"

No. of Rows of Rivets in Back End Circumferential Seams

2

Are these Seams Hand or Machine Riveted?

Machine

Diam. of Rivet Holes

$1\frac{7}{16}$ "

Pitch

3.8247"

Size of Manholes in Shell

$16" \times 12"$

Dimensions of Compensating Rings

$2'-9\frac{5}{8}" \times 2'-5\frac{3}{4}" \times 1\frac{7}{8}"$



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Thickness of End Plates in Steam Space Approved

 $1\frac{5}{32}$

" " " " " in Boilers

 $20 \times 16\frac{3}{4}$

Pitch of Steam Space Stays

 $20 \times 16\frac{3}{4}$

Diar. " " " " Approved 3 Threads per Inch

6.

" " " " " in Boilers 3

6

Material of " " "

Steel

How are Stays Secured?

Double Nuts + Washers

Diar. and Thickness of Loose Washers on End Plates

 $9\frac{1}{2} \times \frac{13}{16}$

" " Riveted " " "

Width " " Doubling Strips " "

Thickness of Middle Back End Plates Approved

 $7/8$

" " " " " in Boilers

 $7/8$

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?

X

Thickness of Back End Plates at Bottom Approved

 $7/8$

" " " " " in Boilers

 $7/8$

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

1"

1"

1"

1"

1"

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

Thickness of End Plates Approved

8

" " " " " in Boilers

8

Thickness of Front Tube Plates Approved

" " " " " in Boilers

Pitch of stay lines at spaces between blocks of tubes

Thickness of Doublings in

" " " " " in Boilers

Are stay tubes fitted with Nuts at front ends?

Thickness of Back Tube Plates Approved

" " " " " in Boilers

Pitch of stay tubes in Back Tube Plates

Thickness of stay tubes

" " " " " in Boilers

External diam. of tubes

Material

Are stay tubes fitted with Nuts outside?

Thickness of front tube plates approved

" " " " " in Boilers

Pitch of stay tubes at wide spaces between fireboxes

Thickness of doublings in

" " " " " in Boilers

Thickness of front end plates at bottom approved

" " " " " in Boilers

No. of longitudinal stays in spaces between furnaces



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Diarr. of Stays Approved 3" Threads per Inch 6
 " " in Boilers 3
 Material " Steel

Thickness of Front Tube Plates Approved 1"

" " " " in Boilers 1"

Pitch of Stay Tubes at Spaces between Stacks of Tubes $13\frac{1}{2}" \times 7\frac{1}{4}"$

Thickness of Doublings in " " " $\frac{5}{16}"$

" Stay Tubes at " " " $\frac{5}{16}"$

Are Stay Tubes fitted with Nuts at Front End? yes.

Thickness of Back Tube Plates Approved $\frac{13}{16}"$

" " " in Boilers $13\frac{1}{16}"$

Pitch of Stay Tubes in Back Tube Plates $7\frac{1}{4}" \times 7\frac{1}{2}"$

" Plain " $3\frac{3}{4}" \times 3\frac{7}{8}"$

Thickness of Stay Tubes $\frac{5}{16}"$

" Plain " 8 I.W.G.

External Diarr. of Tubes $2\frac{1}{2}"$

Material " Iron.

Thickness of Furnace Plates Approved $\frac{5}{8}"$

" " " in Boilers $\frac{5}{8}"$

Smallest outside Diarr. of Furnaces $4\frac{3}{4}"$

Length between Tube Plates $7'-9"$

Width of Combustion Chambers (Front to Back) $3'-3\frac{1}{2}"$

Thickness of " " Tops Approved $\frac{43}{64}"$

" " " " in Boilers $\frac{43}{64}"$

Pitch of Screwed Stays in C.C. Tops $8\frac{3}{8}" \times 8\frac{1}{4}"$

Diarr. of Stays Approved 10 Threads per Inch 10
 " " in Boilers 10
 Material " Steel

Thickness of Front Tube Plates Approved 10

" " " " in Boilers 10

Pitch of Stay Tubes at Spaces between Stacks of Tubes 10

Thickness of Doublings in " " " 10

" Stay Tubes at " " " 10

Are Stay Tubes fitted with Nuts at Front End? 10

Thickness of Back Tube Plates Approved 10

" " " in Boilers 10

Pitch of Stay Tubes in Back Tube Plates 10

" Plain " 10

Thickness of Stay Tubes 10

" Plain " 10

External Diarr. of Tubes 10

Material " 10

Thickness of Furnace Plates Approved 10

" " " in Boilers 10

Smallest outside Diarr. of Furnaces 10

Length between Tube Plates 10

Width of Combustion Chambers (Front to Back) 10

Thickness of " " Tops Approved 10

" " " " in Boilers 10

Pitch of Screwed Stays in C.C. Tops 10

Diar. of Screwed Stays Approved

 $1\frac{5}{8}$

Threads per Inch

10

" " " in Boilers

 $1\frac{5}{8}$

10

Material " "

Steel

Thickness of Combustion Chamber Sides Approved

 $\frac{43}{64}$

" " " " in Boilers

 $4\frac{3}{64}$

Pitch of Screwed Stays in C.O. Sides

 $8\frac{1}{8} \times 8\frac{1}{4}$

Diar. " " Approved

 $1\frac{5}{8}$

Threads per Inch

10

" " " in Boilers

 $1\frac{5}{8}$

10

Material " "

Steel

Thickness of Combustion Chamber Backs Approved

 $\frac{21}{32}$

" " " in Boilers

 $2\frac{1}{32}$

Pitch of Screwed Stays in C.O. Backs

 $8\frac{3}{4} \times 8\frac{7}{32}$

Diar. " " Approved

 $1\frac{5}{8}$

Threads per Inch

10

" " " in Boilers

 $1\frac{5}{8}$ - wing $1\frac{3}{4}$ & $1\frac{7}{8}$

Material " "

Steel

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

yes $\frac{25}{32}$

Thickness of Combustion Chamber Bottoms

 $2\frac{1}{32}$

No. of Girders over each Wing Chamber

5

" " " Centre " "

4

Depth and Thickness of Girders

2 - $10\frac{1}{8} \times 7\frac{1}{4}$

Material of Girders

Steel

No. of Stays in each

3

3

No. of Tubes, each Boiler

388

Size of Lower Manholes

 16×12

VERTICAL DONKEY BOILERS

No. of Boilers _____ Type _____

Greatest Lat. Diam. _____

Height of Boiler Crown above Fire Grate _____

Are Boiler Gaskets Tight or Leaky? _____

Internal Radius of Tapped Ends _____

Description of Stays in Boiler Crown _____

Diam. of Tapped Ends _____

Height of Tapped Crown above Fire Grate _____

Are Tapped Gaskets Tight or Leaky? _____

External Radius of Tapped Crown _____

No. of Crown Stays _____

Material _____

Thickness of Plate _____

Internal Diam. of Firebox at Top _____

Bottom _____

No. of Water Tubes _____

Material of Water Tubes _____

Steel Manholes in Firebox _____

Dimensions of Combustion Brick _____

Leading Gaskets, and Bolts _____

Grate 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		
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
No. of Water Tubes	Ext. Diar.	Thickness of Plates
Material of Water Tubes		Thickness
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	1	1	1	1
Material	L.W.W.	L.W.S.	L.W.S.	L.W.W.
Brazed, Welded or Seamless	as above			
Internal Diam.	5 1/2			
Thickness	1/4			
How are Flanges secured?	Screwed	8/4/21		
Date of Hydraulic Test	5/4/21	22/4/21	25/4/21	
Test Pressure	600 lbs.			

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

EVAPORATORS

No.	1
Type	Horizontal
Material	Steel
Working Pressure	100 lbs.
Test Pressure	150 lbs.
Date of Test	10/10/21
Test Pressure	150 lbs.
Working Pressure	100 lbs.
No.	2
Type	Horizontal
Material	Steel
Working Pressure	100 lbs.
Test Pressure	150 lbs.
Date of Test	10/10/21
Test Pressure	150 lbs.
Working Pressure	100 lbs.

FEED WATER FILTERS

No.	1
Type	Horizontal
Material	Steel
Working Pressure	100 lbs.
Test Pressure	150 lbs.
Date of Test	10/10/21
Test Pressure	150 lbs.
Working Pressure	100 lbs.



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EVAPORATORS.

No. 1 Type Catheart Tons per Day 30
 Makers G. & J. Weir, Catheart
 Working Pressure 200 LBS Test Pressure X Date of Test 18/1/21
 Date of Test of Safety Valves under Steam R. L.C.

FEED WATER HEATERS.

No. 1 Type Direct Contact
 Makers G. & J. Weir, Catheart
 Working Pressure ✓ Test Pressure ✓ Date of Test ✓

FEED WATER FILTERS.

No. 1 Type Clinax Size 4000
 Makers Hocking & Co. Lpool. galls.
 Working Pressure 200 LBS Test Pressure ✓ Date of Test ✓

LIST OF DONKEY PUMPS.

Weir's Pumps. (2) 9 1/2" x 7" x 21" Gift Weir
 Aux. Feed Pump 7" x 5" x 15"
 Ballast Dky. 7" x 8" x 8" Lamont.
 General Service 7" x 5" x 10"
 Sanitary Pump. 5" x 6" x 6"
 Fresh Water Pump. 4" x 4" x 6"



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LIST OF SPARE GEAR.

No. of Top End Bolts.	2	No. of Bot. End Bolts.	2	No. of Cylinder Cover Studs	6
" Coupling Bolts	6	" Main Bearing Bolts	2	" Valve Chest "	6
" Junk Ring Bolts	12	" Feed Pump Valves	2	" Bilge Pump Valves	2
" H.P. Piston Rings	2	" I.P. Piston Rings	1	" L.P. Piston Rings	1
" " Springs	2	" " Springs	1	" " Springs	1
" Safety Valve "	2	" Fire Bars	—	" Feed Check Valves	3
" Piston Rods	1	" Connecting Rods	—	" Valve Spindles	1
" Air Pump Rods	1	" Air Pump Buckets	1	" Air Pump Valves	1 set
" Cir. "	1	" Cir. "	—	" Cir. "	—
" Crank Shafts	1	" Crank Pin Bushes	1 pair	" Crosshead Bushes	1 pair
" Propeller Shafts	1	" Propellers	—	" Propeller Blades	2
" Boiler Tubes	20	" Condenser Tubes	100	" Condenser Ferrules	200

OTHER ARTICLES OF SPARE GEAR:—

as per specification.

REPAIRS



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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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ELECTRIC LIGHTING.

Installation Fitted by *Sunderland Forge & Eng. Co. Belfast*
 No. and Description of Dynamos *One - open Compound wound multipolar*
 Makers of Dynamos *Sunderland Forge & Eng. Co.*
 Capacity *500* Amperes, at *110* Volts. *400* Revols. per Min.
 Current Alternating or Continuous *continuous*
 Single or Double Wire System *double for motors; sq. for lighting*
 Position of Dynamos *in engine room*
 Main Switch Board *in engine room*
 No. of Circuits to which Switches are provided on Main Switch Board *10*

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.
Wireless Telegraph	-	-	30	19/083	300	100%	2500 meg.
Shore Connection	-	-	50	19/083	1250	"	"
Nav. Toffers	<i>4 fans</i> 24 4	16 32	12.2	7/064	600	"	"
upper d.k.	<i>58 fans</i> 18	16	25.8	"	1170	"	"
Cargo Clusters	24	32	28.8	"	1310	"	"
Yacht Sloop	<i>11 fans</i> 2 24	32 16	13.7	"	624	"	"
ETB Room	37	16	20.4	"	927	"	"
Nav. Emergency	<i>4 fans</i> 13	32 16	8.7	7/036	240	"	"
U.D.R. + Eng. Room	<i>1 fan</i> 19	32 16	8.37	"	1190	"	"
Forced draft fan	-	-	208	37/053	833	"	"

Total No. of Lights *193* No. of Motors driving Fans, &c. *1* No. of Heaters *-*Current required for Motors and Heaters *208 amps.*

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

In chart room, 12 switches
In Eng. 12

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. ^{all} Standard S.W.G., Largest, No. — S.W.G.

How are Conductors in Engine and Boiler Spaces protected? Lead covered Armoured & Braided Cable

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

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?

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter?

Date of Trial of complete Installation

Duration of Trial

Ohms.



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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. *Mayani*

as ascertained by *me* from personal examination

JAS. H. MCKAY.
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.C. Chf. ft. : :

Testing, &c. ... : :

Expenses ... : :

Total ... £ : :

It is submitted that this Report be approved,

J. A. Adam
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *24th August 1921*

Fees advised *6/5/21*

Fees paid *13/5/21*

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Secretary.

GENERAL INFORMATION

Form -

The back of this form is to be filled out by the person who is responsible for the work.

U.S. ...

U.S. ...

Dover ...

U.S. ...

U.S. ...

HICKORY

L.P.C.

Testing, etc. ...

Expenditure ...

Total ...

It is submitted that this report be approved.

The above work was done in the ...

Approved by the Committee for the ...

Form advised

Form paid



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