

Smidland Surveyor

No. 1976 **TRANSFERRED TO** 6/10/41
L. R. SYSTEM

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. *1498* No. in Register Book *3096*

u MARINELLA
4 "IMPERIAL VALLEY"
S.S. BUCHANNESS

Makers of Engines *Workman, Clark & Co Ltd*

Works No. *443*

Makers of Main Boilers *Workman, Clark & Co Ltd*

Works No. *443*

Makers of Donkey Boiler

Works No.

RETAIN



MACHINERY.

Alterations' pp 2 & 34
Blyth 12/51

© 2020

Lloyd's Register
Foundation

1104300-004307-0091

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office. *6th January 1925*

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

"BUCHANNESS"

Official No.

Port of Registry *Bidford*

Registered Owners

*Sir William Reardon Smith
and Sons 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

4/11/24

First Visit

24/4/24

Last Visit

4/11/24

Total Visits

62

© 2020

Lloyd's Register
Foundation

RECIPROCATING ENGINES.

Works No. *473* No. of Sets *1* Description *Inverted cylinder triple expansion, surface condensing reciprocating steam engine*

No. of Cylinders each Engine *3* No. of Cranks *3*
 Diars. of Cylinders *26", 42" and 41"* Stroke *48"*
 Cubic feet in each L.P. Cylinder *110.0*

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

" " " each Receiver? *Yes.*

Type of H.P. Valves, *Piston valve (inside steam)*

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

" 2nd I.P. " *—*

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

" Valve Gear *Stephenson's Link motion.*

" Condenser *Surface* Cooling Surface *2,300* sq. ft.

Diameter of Piston Rods (plain part) *4"* Screwed part (bottom of thread) *4 1/16"*

Material " *Steel with Iron nuts.*

Diar. of Connecting Rods (smallest part) *4"* Material *S.H. Steel*

" Crosshead Gudgeons *4"* Length of Bearing *2@4"* Material *S.H. Steel*

No. of Crosshead Bolts (each) *4* Diar. over Thrd. *3"* Thrds. per inch *4 1/2* Material *Steel*

" Crank Pin " *2* " *4"* " *4* " *Steel*

" Main Bearings *6* Lengths *5@14 1/2" 1@14"*

" Bolts in each *2* Diar. over Thread *3 1/4* Threads per inch *4* Material *Steel*

* " Holding Down Bolts, each Engine *121* Diar. *1 3/8"* No. of Metal Chocks *82* *

Are the Engines bolted to the Tank Top or to a Built Seat? *Tank Top.* *124*

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

If not, how are they fitted? *—*

* Including *4* "corner" chocks.

* *13 by 12/41*

Connecting Rods, Forged by *Fried Krupp Essen*

Piston " " *Workman, Clarke & Co Ltd*

Crossheads, *Fried Krupp Essen*

Connecting Rods, Finished by *Workman, Clark & Co Ltd*

Piston " " *—*

Crossheads, " " *—*

Date of Harbour Trial *28/10/24*

" Trial Trip *4/11/24*

Trials run at *Belfast Lough*

Were the Engines tested to full power under Sea-going conditions? *Not full power **

If so, what was the I.H.P.? *Revs. per min. 43*

Pressure in 1st I.P. Receiver, *44* lbs., 2nd I.P., *—* lbs., L.P., *5* lbs., Vacuum, *27.5* ins.

Speed on Trial *10.78*

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

data:—

Builders' estimated I.H.P. *2300*

Revs. per min.

Estimated Speed

* Due to the absence of white metal pads in guide shoes (see Owner's Specification) it was found impossible to open the engines full out, on account of overheating the guides. This trouble will not be experienced when a 'skin' has been worked on the surfaces. Since the trial trip, gutters have been cut in the shoes, and additional lubrication provided for, from the centre of guides.

Lloyd's Register
Foundation

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?

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

Estimated Pressure per lineal inch

Diar. 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.

" " I.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 Knots. Propeller Revols. per min. S.H.P.

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.

No. of Turbo-Generators per Shaft

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

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

Estimated Pressure per lineal inch

Diar. 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 Shaft

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

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

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by



© 2020

Lloyd's Register Foundation

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.

Are the Crank Shafts Built or Solid? *Cast*

No. of Lengths in each *3*

Diam. by Rule *13 1/2"* Actual *13 1/4"*

Length between Webs *14"*

Greatest Width of Crank Webs *2 1/2"*

Diam. of Pins in Crank Webs *2 1/2"*

Diam. of Pins in Crank Webs *2 1/2"*

Power in Crank Pins *1 1/4"*

Diam. at Mid Length *3 1/4"* Diam. of Pitch Circle *20 1/2"*

Greatest Distance from Base of *1 1/2"*

Type of Thrust Blocks *Model*

No. Rings *Two sets of four*

Diam. of Thrust Shafts at Bottom of Collars *13 3/4"*

No. of Collars *1*

Forward Coupling *13 3/4"*

At Air Coupling *13 3/4"*

Backward Coupling *13 1/2" of coupling*

Diam. of Intermediate Shafting by Rule *12 1/2"* Actual *13 1/4"*

No. of Lengths *4*

Diam. at Mid Length *3 1/4"* Diam. of Pitch Circle *20 1/2"*

No. of Bolts, each Coupling *4*

Diam. of Propeller Shafts by Rule *14 1/2"* Actual *14 1/4"*

At Couplings *10"*

Are Propeller Shafts fitted with Continuous Brass Liners? *Yes*

Diam. over Liner *14 1/2"*

Of what Material are the After Bearings, compound? *Aluminum Bronze*

Are Means provided for supporting the After Bearings with Oil? *Yes*

To prevent the shaft entering the Stern Tube? *Yes*

If no other type is used?



© 2020

Lloyd's Register
Foundation

No. of Blades each Propeller **4** Fitted or Solid? **Solid**
 Material of Blades **Cast Iron** Boss **Cast Iron**
 Diam. of Propellers **18'-3"** Pitch **14'-3"** Surface (each) **100** S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth **.742**

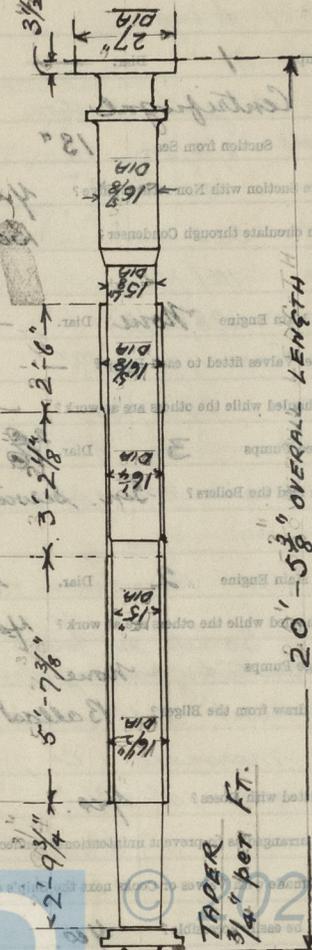
Crank Shafts Forged by **Fried Krupp, Essen** Material **I.S.**
 " Pins " " " " " "
 " Webs " **Beardmore's Parkhead** " " "
 Thrust Shafts " **Fried Krupp, Essen** " **I.S.**
 Intermed. " " " " " "
 Propeller " " " " " "
 Crank " Finished by **Workman Clark & Co Ltd**
 Thrust " " " " " "
 Intermed. " " " " " "
 Propeller " " " " " "

STAMP MARKS ON SHAFTS.

B.C. No
6641
 G.M.L.
3/9/24
 (9)

- 1 CRANK SHAFT (3 LENGTHS)
- 1 THRUST "
- 7 INTERMEDIATE "
- 2 TAIL SHAFTS.

SKETCH OF PROPELLER SHAFT.



PUMPS, ETC.

No. of Air Pumps 1 Diar. 25" Stroke 24"

Worked by Main or Independent Engines? main

No. of Circulating Pumps 1 Diar. — Stroke —

Type of " Centrifugal

Diar. of " Suction from Sea 13"

Has each Pump a Bilge Suction with Non-return Valve? Yes Diar. 9"

What other Pumps can circulate through Condenser? Ballast

No. of Feed Pumps on Main Engine None Diar. — Stroke —

Are Spring-loaded Relief Valves fitted to each Pump? —

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

No. of Independent Feed Pumps 3 Diar. 20 8/16" Stroke 22"
1 @ 3 1/2" 6"

What other Pumps can feed the Boilers? Gen. Service

No. of Bilge Pumps on Main Engine 2 Diar. 4 1/4" Stroke 24"

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

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? 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

Works No. 412

No. of Boilers 3

Single or Double ended Single

No. of Tubes in each 3

Type of Furnaces Water-tube

Date when last approved 8/4/24

Approved Working Pressure 180 lbs/sq in

Hydraulic Test Pressure 220

Date of Hydraulic Test 12/9/24

" when Safety Valves set 28/10/24

Pressure at which Valves were set 180 lbs/sq in

Date of Accumulation Test 28/10/24

Maximum Pressure under Accumulation Test 180 lbs/sq in

System of Drafting Vertical (for coal on side)

Can Valves be worked separately? Yes

Material of Boiler Iron

Can one be overhauled while the others are at work? 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

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? 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

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? 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.

Works No. **473.**

No. of Boilers **3** Type **Cylindrical return tube.**

Single or Double-ended **Single**

No. of Furnaces in each **3.**

Type of Furnaces **Brighton Section corrugated.**

Date when Plan approved **8/4/24.**

Approved Working Pressure **180 lbs/sq"**

Hydraulic Test Pressure **320 "**

Date of Hydraulic Test **12/9/24.**

„ when Safety Valves set **28/10/24**

Pressure at which Valves were set **185 lbs/sq"**

Date of Accumulation Test **28/10/24**

Maximum Pressure under Accumulation Test **185 lbs/sq"**

System of Draught **natural (for coal or oil)**

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

Makers of Plates **Wm Beardmore & Co Ltd**

„ Stay Bars **Societe des Forges & Acieries de Silling
Guthhoffnungshutte, Oberhausen.**

„ Rivets **Rivet, bolt & nut Co**

„ Furnaces **Marshall & Co, Motherwell**

Greatest Internal Diam. of Boilers **16'-0 3/8"**

„ „ Length „ **11'-6"**

Square Feet of Heating Surface each Boiler **2682.**

„ „ Grate „ „ **734, altered to 705**

No. of Safety Valves each Boiler **2.** Rule Diam. **2.953"** Actual **3" H.L.**

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

No. of Pressure Gauges, each Boiler **1** No. of Water Gauges **2**

„ Test Cocks „ **—** „ Salinometer Cocks **1**

Waste pipe each Boiler **4 1/2" diam.** Main **8" diam.**

B.C. TEST
No 3928
TEST PRESS. 320 lbs
W.P. 180 "
J.M.K.
12.9.24.

MARK ON BOILERS.

Selling, Sarre.



© 2020

Lloyd's Register
 Foundation

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

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

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

Plates in each Strake *Two*

Thickness of Shell Plates Approved *1 3/16"*

in Boilers *1 3/8" 1 1/2"*

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 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 5/16"* Pitch *9 1/4"*

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 *Two*

Are these Seams Hand or Machine riveted? *Hand*

Diar. of Rivet Holes *1 7/16"* Pitch *3.803"*

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

Are these Seams Hand or Machine Riveted? *Machine*

Diar. of Rivet Holes *1 7/16"* Pitch *3.803"*

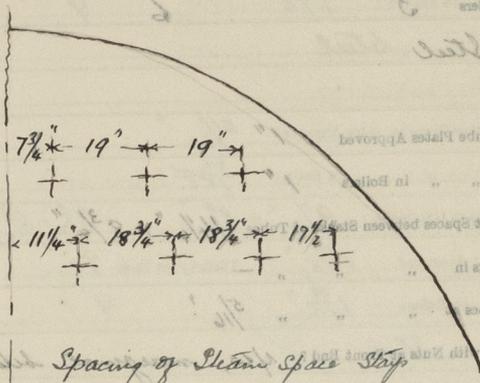
Size of Manholes in Shell *16" x 12"*

Dimensions of Compensating Rings *2-11/4" x 2-9/4"*

1/32"
1/16"
1/8"
3/16"
1/2"
3/4"
1"
1 1/8"
1 1/4"
1 1/2"
1 3/4"
2"
2 1/4"
2 1/2"
3"
3 1/2"
4"
4 1/2"
5"
5 1/2"
6"
6 1/2"
7"
7 1/2"
8"
8 1/2"
9"
9 1/2"
10"
10 1/2"
11"
11 1/2"
12"
12 1/2"
13"
13 1/2"
14"
14 1/2"
15"
15 1/2"
16"
16 1/2"
17"
17 1/2"
18"
18 1/2"
19"
19 1/2"
20"



Thickness of End Plates in Steam Space Approved $1\frac{9}{32}$ "
 " " " " " in Boilers $1\frac{1}{4}$ " F
 Pitch of Steam Space Stays See Sketch
 Diam. " " " " Approved $3\frac{1}{2}$ " Threads per Inch 6
 " " " " " in Boilers $3\frac{1}{2}$ " " 6
 Material of " " " Steel
 How are Stays Secured? Nuts inside & outside with thin washers.
 Diam. and Thickness of Loose Washers on End Plates —
 " " Riveted " " " —
 Width " " Doubling Strips " —
 Thickness of Middle Back End Plates Approved $\frac{7}{8}$ "
 " " " " " in Boilers $\frac{7}{8}$ "
 Thickness of Doublings in Wide Spaces between Fireboxes —
 Pitch of Stays at " " " " $14\frac{1}{4}$ " x $8\frac{1}{2}$ "
 Diam. of Stays Approved $1\frac{7}{8}$, $1\frac{3}{4}$, $1\frac{1}{8}$ " Threads per Inch 9
 " " in Boilers $1\frac{7}{8}$ top corner, $1\frac{3}{4}$ marg., $1\frac{1}{8}$ centre.
 Material " Steel
 Are Stays fitted with Nuts outside? Yes.
 Thickness of Back End Plates at Bottom Approved $\frac{7}{8}$ "
 " " " " " in Boilers $\frac{7}{8}$ + $\frac{1}{32}$ "
 Pitch of Stays at Wide Spaces between Fireboxes $14\frac{1}{4}$ to 17 " x $8\frac{1}{2}$ "
 Thickness of Doublings in " " —
 Thickness of Front End Plates at Bottom Approved 1"
 " " " " " in Boilers 1" - $\frac{1}{8}$ " B.
 No. of Longitudinal Stays in Spaces between Furnaces One above each manhole.



Spacing of Steam Space Stays



© 2020

Lloyd's Register
Foundation

Diar. of Screwed Stays Approved $1\frac{5}{8}$ " Threads per Inch 9
 " " " in Boilers $1\frac{5}{8}$ " 9
 Material " " *Steel*

Thickness of Combustion Chamber Sides Approved $2\frac{1}{32}$ "
 " " " in Boilers $5/8$ "

Pitch of Screwed Stays in C.O. Sides $9\frac{1}{4}$ " x $8\frac{1}{2}$ " $8\frac{1}{2}$ " x $8\frac{1}{2}$ " extra boxes.
 Diar. " " Approved $1\frac{5}{8}$ " Threads per Inch 9
 " " " in Boilers $1\frac{5}{8}$ " 9
 Material " " *Steel*

Thickness of Combustion Chamber Backs Approved $4\frac{1}{64}$ "
 " " " in Boilers $4\frac{2}{64}$ "

Pitch of Screwed Stays in C.O. Backs $8\frac{1}{2}$ " x $8\frac{1}{4}$ "
 Diar. " " Approved $1\frac{7}{8}$, $1\frac{3}{4}$, $1\frac{9}{8}$ " Threads per Inch 9
 " " " in Boilers $1\frac{7}{8}$, $1\frac{3}{4}$, $1\frac{9}{8}$ " 9
 Material " " *Steel*

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

Thickness of Combustion Chamber Bottoms $3\frac{1}{4}$ "

No. of Girders over each Wing Chamber 5
 " " " Centre " 3

Depth and Thickness of Girders *Double $3\frac{1}{4}$ " plate + 10" deep.*

Material of Girders *Steel*

No. of Stays in each 3

No. of Tubes, each Boiler 348.

Size of Lower Manholes 16 " x 12 ".

No. of Boilers
 Type
 Greatest Lat. Dist.
 Height
 Height of Boiler Crown above Fire Grate
 Are Boiler Crown Flat or Dished?
 External Radius of Dished Ends
 Thickness of Plates
 Description of Beams in Boiler Crown
 Width of Grating
 Diar. of Rivet Holes
 Height of Firebox Crown above Fire Grate
 Are Firebox Crown Flat or Dished?
 External Radius of Dished Crown
 Thickness of Plates
 No. of Crown Stays
 External Diar. of Firebox at Top
 Bottom
 Thickness
 No. of Water Tubes
 External Diar. of Water Tubes
 Material of Water Tubes
 Size of Manhole in Shell
 Dimensions of Compressing Ring
 Hoisting Sockets, each Boiler
 Description of Superheaters
 Which Boilers are connected to Superheaters?
 On Superheaters heating of water tubes and steam?
 No. of Safety Valves on each boiler
 Date when Safety Valves set
 Test Pressure
 Diar.
 Description of Superheaters

SUPERHEATERS



© 2020

Lloyd's Register
Foundation

VERTICAL DONKEY BOILERS.

No. of Boilers *178* Type *9*
 Greatest Int. Diar. *36"* Height
 Height of Boiler Crown above Fire Grate
 Are Boiler Crowns Flat or Dished? *1/4"*
 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 *None* Diar. *4"* Material
 External Diar. of Firebox at Top Bottom *34"* Thickness of Plates
 No. of Water Tubes Ext. Diar. *2 1/2"* 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 *None* Diar. *10" deep*
 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	Radius, Welded or Seamed	Internal Diar.	Thickness	How are Flanges secured?	Date of Hydraulic Test	Test Pressure
2	Steel	2.0	8"	1/4"	Seamed	7/7/04	200 lbs
2	Steel	2.0	8"	1/4"	Seamed	8/7/04	200 lbs
1	Steel	2.0	8"	1/4"	Seamed	8/7/04	200 lbs
3	Steel	2.0	8"	1/4"	Seamed	7/7/04	200 lbs

No. of Pipes	Material	Radius, Welded or Seamed	Internal Diar.	Thickness	How are Flanges secured?	Date of Hydraulic Test	Test Pressure
2	Steel	2.0	8"	1/4"	Seamed	7/7/04	200 lbs



MAIN STEAM PIPES.

No. of Lengths	3	1	2	2
Material	Steel	Steel	Steel	Steel
Brazed, Welded or Seamless	S. D.	S. D.	S. D.	S. D.
Internal Diar.	5"	5"	3 1/2"	3 1/2"
Thickness	1/4"	1/4"	1/4"	1/4"
How are Flanges secured?	Screwed	Screwed	Screwed	Screwed
Date of Hydraulic Test	7/7/24	9/2/24	9/7/24	25/7/24
Test Pressure	600 lbs.	600 lbs.	600 lbs.	600 lbs.

No. of Lengths	2
Material	Steel
Brazed, Welded or Seamless	S. D.
Internal Diar.	5"
Thickness	1/4"
How are Flanges secured?	Screwed
Date of Hydraulic Test	4/8/24
Test Pressure	600 lbs.

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

EVAPORATORS

No. of Lengths	1
Material	Steel
Brazed, Welded or Seamless	S. D.
Internal Diar.	5"
Thickness	1/4"
How are Flanges secured?	Screwed
Date of Hydraulic Test	7/7/24
Test Pressure	600 lbs.

No. of Lengths	1
Material	Steel
Brazed, Welded or Seamless	S. D.
Internal Diar.	5"
Thickness	1/4"
How are Flanges secured?	Screwed
Date of Hydraulic Test	7/7/24
Test Pressure	600 lbs.



© 2020

Lloyd's Register
Foundation

EVAPORATORS.

No. 1 Type *Weirs'* 35 Tons per Day
 Makers *G. & J. Weir Ltd Cathcart*
 Working Pressure 15 Test Pressure 30 shell 360 coils Date of Test 29.8.24.
 Date of Test of Safety Valves under Steam 28/10/24.

FEED WATER HEATERS.

No. 1 Type *Direct Contact* (No 75328)
 Makers *G. & J. Weir Ltd Cathcart*
 Working Pressure 20 Test Pressure 40 Date of Test 20.8.24.

FEED WATER FILTERS.

No. 1 Type *High Pressure* Size
 Makers *Kiercauldry & Co*
 Working Pressure 180 Test Pressure 400 Date of Test 26/9/24.

LIST OF DONKEY PUMPS.

Harbour Pump. Thom Lamont

Suctions :- Sea, control tank, Hotwell.
 Discharge :- Main & aux feed range, heater.

Large Harbour Pump. Thom Lamont.

Suctions :- Control tank, sea, condenser.
 Discharge :- Sanitary, overboard, boiler feed.

Aux circulating & General Service Pump Thom Lamont.

Suctions :- Sea, ballast.
 Discharge :- Aux condenser, sanitary range, overboard.

Ballast & Bilge Pump. Thom Lamont.

Suctions :- Sea, tanks, bilge main, bilge disch.
 Discharge :- main cond^r, overboard, aux cond^r
 sanitary



© 2020

Lloyd's Register
Foundation

SPARE GEAR LIST

No. of Top End Bolts.	No. of Bot. End Bolts.	No. of Cylinder Cover Studs
2.	2.	3 @ 1 1/2"
" Coupling Bolts 6	" Main Bearing Bolts 2	" Valve Chest " 6 @ 1 3/8"
" Junk Ring Bolts 12	" Feed Pump Valves 2 main 2 aux	" Bilge Pump Valves 1" 5/8" 1 set station
" H.P. Piston Rings —	" I.P. Piston Rings —	" L.P. Piston Rings —
" " Springs —	" " Springs —	" " Springs —
" Safety Valve " 2	" Fire Bars 1 Full Set.	" Feed Check Valves 2 main 2 aux
" Piston Rods —	" Connecting Rods —	" Valve Spindles —
" Air Pump Rods —	" Air Pump Buckets —	" Air Pump Valves 6 Sets. Kingham Valve
" Cir. " 1 Impeller & shaft	" Cir. " —	" Cir. " —
" Crank Shafts —	" Crank Pin Bushes 1 pair	" Crosshead Bushes —
" Propeller Shafts 1	" Propellers 1 Solid	" Propeller Blades —
" Boiler Tubes 6	" Condenser Tubes 6	" Condenser Ferrules 100

OTHER ARTICLES OF SPARE GEAR:—

Main Feed pumps (Weirs)

1 set suction valves

" discharge "

" piston rings

" bucket rings

Ballast & Harbour Feed pumps.

1 set suction valves

" discharge "

" piston rings

Any circulating & General Service Pump

1 set piston rings.

Oil Fuel Plant.

1 suction & 1 discharge strainer basket

2 set thermometers

3 White's Patent Burners complete.

3 burner tips for each burner
" supply valves & 3 pipes

6 burner springs

3 flame controls

3 jacket tubes

1/2 set of group valves & springs for 1 pump

1 " steam piston rings for 1 pump

1 " oil " " " " "

Oil Fuel Transfer Pump.

4 m. s. ring valves

30 monel springs

4 - 6 1/2" C.I. piston rings

" 7" C.I. bucket "



© 2020

Lloyd's Register
Foundation

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

not fitted

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

6th Feb 1901
 1 bucket & 1 bucket steam bucket
 2 set thermometer
 3 White Patent Russian caplets.

RESULTS OF TRIALS.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after hours.
Machine of 1000 lbs	114	110	30	
Capacity				
Correct Arranging				
Single or Double Flow				
Position of Draining				
Water Surface				
No. of Cylinders				
Particulars of Pumps				
Check				
Valve Space	32	16	176	
2nd Room	21	12	112	
3rd Room	10	6	72	

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



© 2020
 Lloyd's Register
 Foundation

COMPLAINT	Temp. at bearing before	Temp. at bearing after	Time required to obtain this result.	Use of lubricant
-----------	-------------------------------	------------------------------	--	---------------------

*Extra (new) Generator fitted by
Admiralty at Blyth 12/41.*

Installed by Blyth S. D. & S. B. Co

*One Compound wound multipolar dynamo
made by W. H. Allen Bedford
Capacity 91 amp 110 volts @ 550 r.p.m.*

Engine

*Single cylinder enclosed forced lubrication
driven by steam coupled direct.*

*Switch board altered & added to, enabling
either machine to take lighting or
degaussing or both.*

ELECTRIC LIGHTING.

Installation Fitted by *Sunderland Forge & Eng. Co Ltd*
No. and Description of Dynamos *One Compound Wound Multipolar Dynamo.*
Makers of Dynamos *Sunderland Forge & Eng. Co Ltd*
Capacity " *114* Amperes, at *110* Volts, *320* Revols. per Min.
Current Alternating or Continuous *Continuous*
Single or Double Wire System *Double*
Position of Dynamo *Engine Room.*
" Main Switch Board *Reside Dynamo.*
No. of Circuits to which Switches are provided on Main Switch Board *6.*

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. Mach. Spaces.	32	16	17.6	7/036	2514	100%	660 meg.
2. Amid. Accou.	21	20 watt	4.92	7/036	403	"	"
3. W/TELEGRAPH	—	—	4.55	7/036	650	"	"
4. Navig. & 700	43	20 watt	14.88	7/064	612	"	"
5. Cargo	6	32 cp.	9.09	7/036	1298	"	"
6. Eng. Workshop/Motor	—	—	—	—	—	"	"

Total No. of Lights *123* No. of Motors driving Fans, &c. / No. of Heaters

Current required for Motors and Heaters



© 2020

Lloyd's Register
Foundation

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

CHART ROOM 7 switches

ENG. " 8 "

AMIDSHIP " 3 "

FORD ACCOM. " 5 "

Are Cut-outs fitted as follows?—

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

On Aux. " " each Auxiliary Circuit *Yes.*

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 Cut-outs constructed of Non-inflammable Material? *Yes.*

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

Smallest Single Wire used, No. *ALL STRANDED* S.W.G., Largest, No. *ALL STRANDED* S.W.G.

How are Conductors in Engine and Boiler Spaces protected? *LEAD COVERED, ARMURED & BRAIDED*

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

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp *LEAD COVERED, ARMURED & BRAIDED*

(2) " " passing through Bunkers or Cargo Spaces *ON DECK.*

(3) " " Deck Beams or Bulkheads *FIBRE ROUSSES OR W/T PACKING GLANDS.*

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? *Yes*

What does the Resistance amount to? *1 meg.* Ohms.

Is the Installation supplied with a Voltmeter? *Yes*

" " " an Ampere Meter? *Yes.*

Date of Trial of complete Installation *4/11/24* Duration of Trial *6 hrs.*

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



© 2020

Lloyd's Register
Foundation

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.

Have Tests been made to prove that the condition has been satisfactorily fulfilled?

Has the Installation Resistance over the whole system been tested?

What does the Resistance amount to?

Is the Installation supplied with a Voltmeter?

Are the Motors supplied with a Voltmeter?

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. "BUCHANNESS"

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. *36 : 2 : 0*

G.S. " : :

DONKEY BOILERS.

H.S. Sq. ft. : :

G.S. " : :

£ : :

ENGINES.

L.P.C. Cub. ft. *62 : 0 : 0*

£ : :

Testing, &c. : :

£ : :

Expenses : :

Total ... £ *98 : 2 : 0*

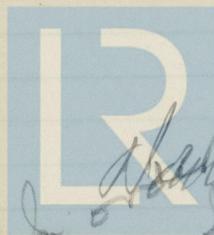
It is submitted that this Report be approved,

John King
 Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *18th March 1915*

Fees advised

Fees paid



© 2020

Lloyd's Register
 Foundation
 Secretary.

GENERAL CONSTRUCTION

Loss - ...
 H.S. ...
 DONEY BOLLERS ...

400 : 0 : 0

H.S. ...
 G.S. ...

L.F.C. ...
 0 : 0 : 0

Testing for ...

expenses ...
 Total ... 0 : 0 : 0

It is submitted that this Report be approved.

[Signature]

This Report was prepared by the Committee for the Class of M.B.S. on the ...

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

"BUCHANNESS"

[Signature]
[Signature]



© 2020

Lloyd's Register Foundation



© 2020

Lloyd's Register
Foundation



© 2020

Lloyd's Register
Foundation