

No 1917

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 1743 No. in Register Book 5030

S.S. "B R O R A"

Makers of Engines AILSA SHIPBUILDING CO LTD

Works No. 120

Makers of Main Boilers DUNSMUIR & JACKSON LTD

Works No. B.147

Makers of Donkey Boiler MESSRS COCHRAN & CO (ANNAN) LTD

Works No. 9148

MACHINERY.



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002435-002441-0089

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 1743 No. in Register Book 3030

Received at Head Office 18th May 1924

Surveyor's Report on the Petrol Engines, Boilers, and Auxiliary
Machinery of the ~~Single Triple~~ ^{Single Triple} Screw "BRORA"

Official No. 147895. Port of Registry GLASGOW.

Registered Owners WILLIAM SLOAN & CO. LTD.

Engines Built by AILSA SHIPBUILDING CO. LTD.

at TROON, Ayrshire.

Main Boilers Built by DUNSMUIR & JACKSON, L^{td}

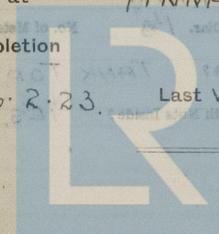
at GOVAN, GLASGOW.

Donkey " COCHRAN & CO (ANNAN) L^{td}

at ANNAN.

Date of Completion

First Visit 16.2.23. Last Visit 29.4.24. Total Visits 47.



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RECIPROCATING ENGINES.

Works No. 120 No. of Sets ONE Description TRIPLE EXPANSION,
SURFACE CONDENSING, DIRECT ACTING, INVERTED,
SINGLE SCREW.

No. of Cylinders each Engine THREE No. of Cranks THREE
Diams. of Cylinders 18 28 50 Stroke 42"

Cubic feet in each L.P. Cylinder 47.7

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

" " " each Receiver? YES

Type of H.P. Valves, DOUBLE PORT BALANCED A2C TYPE

" 1st I.P. " " " " " "

" 2nd I.P. " " " " " "

" L.P. " " " " " "

" Valve Gear STEPHENSON LINK MOTION.

" Condenser MORRISON CONTRAFLO Cooling Surface 1450 sq. ft.

Diameter of Piston Rods (plain part) 5 3/4" Screwed part (bottom of thread) 4"

Material " STEEL

Diam. of Connecting Rods (smallest part) 5 1/2" Material IRON

" Crosshead Gudgeons 5" Length of Bearing 5" Material STEEL

No. of Crosshead Bolts (each) 4 Diam. over Thrd. 2 1/8" Thrds. per inch 7 Material STEEL

" Crank Pin " " 2 " 2 3/4" " 4 " " "

" Main Bearings 6 Lengths 15"

" Bolts in each 2 Diam. over Thread 2 1/4" Threads per inch 4 Material "

" Holding Down Bolts, each Engine 88 Diam. 1 1/8" No. of Metal Chocks 88

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 KERR & SONS IRVINE,

Piston " " LANARKSHIRE STEEL CO

Crossheads, DENNYSTOWN FORGE CO.

Connecting Rods, Finished by AILSO SHIPBUILDING CO LTD

Piston " " " " " "

Crossheads, " " " " " "

Date of Harbour Trial 25. 4. 24.

" Trial Trip 29. 4. 24

Trials run at FIRTH OF CLYDE

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

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

1364.

Revs. per min.

87.5.

Pressure in 1st I.P. Receiver, 68 lbs., 2nd I.P.,

lbs., L.P., 13.5 lbs., Vacuum, 26 1/2 ins.

Speed on Trial 12.3 KNOTS.

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

data:—

Builders' estimated I.H.P.

1200

Revs. per min.

80

Estimated Speed

12 KNOTS.

DOUBLE RUN CUMBRAE LIGHT TO PLADDA 36 KNOTS
AVERAGE SPEED 12 KNOTS



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TURBO-ELECTRIC PROPELLING MACHINERY.

No. of Turbo-Generating Sets — Capacity of each —

Type of Turbines employed —

Description of Generators —

No. of Motors driving Propeller Shafting —

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

Is Single or Double Reduction Gear employed? —

Description of Motors —

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

Estimated Pressure per lineal inch —

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

Estimated Pressure per lineal inch —

Revs. per min. of Generators at Full Power —

" Motors " —

" " 1st Reduction Shaft —

" " 2nd " —

" " Propellers at Full Power —

Total Shaft Horse Power —

Date of Harbour Trial —

" Trial Trip —

Trials run at —

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

Makers of Turbines

" Generators —

" Motors —

" Reduction Gear —

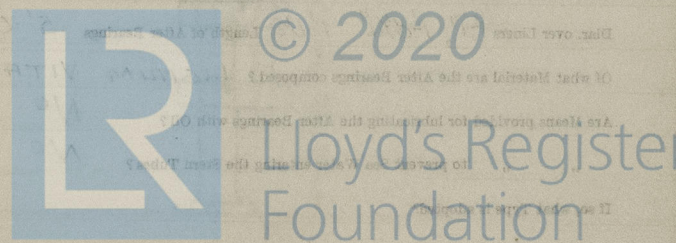
Turbine Spindles forged by —

" Wheels forged or cast by —

Reduction Gear Shafts forged by —

" Wheels forged or cast by —

DESCRIPTION OF INSTALLATION.



BUILT

If so, what Type is adopted?

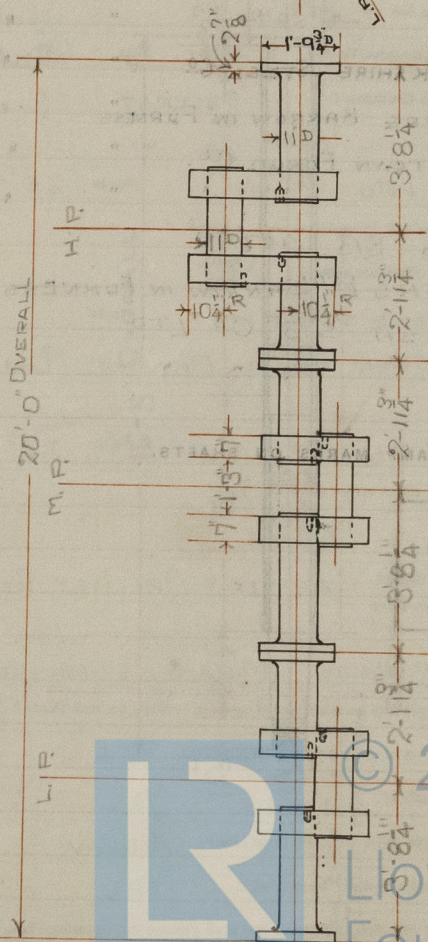
No. of Lengths *THREE*

At Couplings $11 \frac{5}{8}$ "

5'-0"

No

No

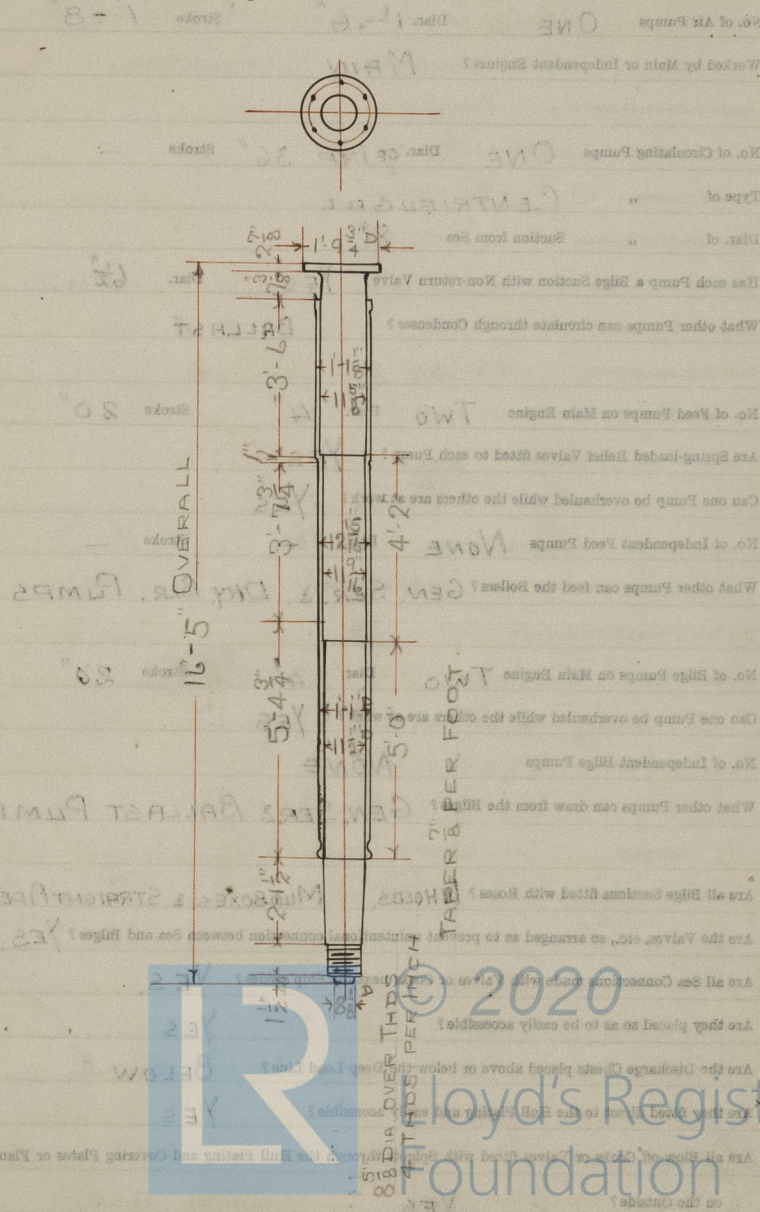


one 7 1/2" diam. 1 1/2" dia.
in each. Crank pin
one ditto 2" dia. in shaft

THE DISEASES

Scale

B.C.
N^o 4223
R.L.G.
10.7.23.



PUMPS, ETC. NOTES

No. of Air Pumps ONE Diar. 1'-6" Stroke 1'-8"

Worked by Main or Independent Engines? MAIN

No. of Circulating Pumps ONE Diar. 36" Stroke

Type of CENTRIFUGAL

Diar. of Suction from Sea 8"

Has each Pump a Bilge Suction with Non-return Valve? YES Diar. 6 1/2"

What other Pumps can circulate through Condenser? BALLAST

No. of Feed Pumps on Main Engine TWO Diar. 4" Stroke 20"

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 NONE Diar. — Stroke —

What other Pumps can feed the Boilers? GEN. SER. & DKY. BLR. PUMPS

No. of Bilge Pumps on Main Engine TWO Diar. 4" Stroke 20"

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? GEN. SER. & BALLAST PUMPS

Are all Bilge Suctions fitted with Roses? INHOLDS. MUDBOXES & STRAIGHT PIPES E.R.

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.

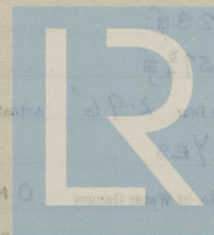
Are they placed so as to be easily accessible? YES

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 Flanges

on the Outside? YES



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BOILERS

Works No.	B 147
No. of Boilers	2
Type	CYLINDRICAL, MULTITUBULAR.
Single or Double-ended	SINGLE.
No. of Furnaces in each	3
Type of Furnaces	DEIGHTON
Date when Plan approved	8-2-23
Approved Working Pressure	180 Lbs.
Hydraulic Test Pressure	320 "
Date of Hydraulic Test	28-6-23
" when Safety Valves set	25-4-24.
Pressure at which Valves were set	180 lbs
Date of Accumulation Test	29-4-24
Maximum Pressure under Accumulation Test	186 lbs.
System of Draught	NATURAL
Can Boilers be worked separately?	YES.
Makers of Plates	THE STEEL CO OF SCOTLAND L ^d .
" (Wrapper)	JOHN SPENCER & SONS, L ^d .
" Stay Bars	D. COLVILLE & SONS, L ^d
" Rivets	M. W. RIVET, BOLT & NUT CO L ^d
" Furnaces	THE LEEDS FORGE CO L ^d
Greatest Internal Diam. of Boilers	14'-3"
" " Length "	11'-6"
Square Feet of Heating Surface each Boiler	2128 $\frac{1}{2}$
" " Grate " "	57 $\frac{3}{4}$ $\frac{1}{2}$
No. of Safety Valves each Boiler	2
Rule Diam.	2.96"
Actual	3
Are the Safety Valves fitted with Easing Gear?	YES
No. of Pressure Gauges, each Boiler	ONE
No. of Water Gauges	ONE
" Test Cocks	" THREE
" Salinometer Cocks	ONE

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Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " " Approved $2\frac{2}{5}$ 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 $1\frac{3}{4}$ 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

 $1\frac{3}{16}$ $1'-7\frac{1}{4}" \times 1'-6\frac{3}{4}"$

6

STEEL

DOUBLE NUTS

✓

✓

✓

 $2\frac{9}{32}$

"

✓

 $8\frac{1}{2}"$

9

STEEL

YES

 $2\frac{9}{32}$ $1\frac{5}{16}$ $8\frac{1}{2}"$

✓

 $1\frac{1}{32}$

"

3



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Diar. of Stays Approved $2\frac{1}{4}"$ Threads per Inch 8
 " " in Boilers " "
 Material " STEEL
 Thickness of Front Tube Plates Approved $1\frac{1}{32}"$
 " " " " in Boilers " "
 Pitch of Stay Tubes at Spaces between Stacks of Tubes $9\frac{1}{4}"$
 Thickness of Doublings in " " "
 " Stay Tubes at " " " $7\frac{1}{16}"$ & $3\frac{1}{8}"$

Are Stay Tubes fitted with Nuts at Front End?

MARGINAL NUTS

Thickness of Back Tube Plates Approved $2\frac{1}{32}"$
 " " " in Boilers " "
 Pitch of Stay Tubes in Back Tube Plates $9\frac{1}{4}"$ & $13\frac{1}{8}"$
 " Plain " $4\frac{5}{8}"$
 Thickness of Stay Tubes $4@7\frac{1}{16}"$, $47@3\frac{3}{8}"$, $22@5\frac{1}{16}"$
 " Plain " 8 L.S.G. ($5\frac{1}{2}"$ F)
 External Diar. of Tubes $3\frac{1}{2}"$
 Material " IRON
 Thickness of Furnace Plates Approved $9\frac{1}{16}"$
 " " " in Boilers " "
 Smallest outside Diar. of Furnaces $3'-7\frac{1}{8}"$
 Length between Tube Plates $7'-7"$
 Width of Combustion Chambers (Front to Back) $3'-0"$ (MEAN)
 Thickness of " " Tops Approved $4\frac{1}{64}"$
 " " " in Boilers " "
 Pitch of Screwed Stays in C.C. Tops $8\frac{1}{2}"$ & $8\frac{1}{2}"$

Diar. of Screwed Stays Approved $8\frac{1}{2}"$ Threads per Inch 8
 " " in Boilers " "
 Material " STEEL
 Thickness of Combustion Chamber Plates Approved $1\frac{1}{32}"$
 " " " in Boilers " "
 Pitch of Screwed Stays in C.C. Plates $9\frac{1}{4}"$
 Thickness of Doublings in " " "
 " Stay Tubes at " " " $7\frac{1}{16}"$ & $3\frac{1}{8}"$
 Are Stay Tubes fitted with Nuts at Front End?
 MARGINAL NUTS
 Thickness of Back Tube Plates Approved $2\frac{1}{32}"$
 " " " in Boilers " "
 Pitch of Stay Tubes in Back Tube Plates $9\frac{1}{4}"$ & $13\frac{1}{8}"$
 " Plain " $4\frac{5}{8}"$
 Thickness of Stay Tubes $4@7\frac{1}{16}"$, $47@3\frac{3}{8}"$, $22@5\frac{1}{16}"$
 " Plain " 8 L.S.G. ($5\frac{1}{2}"$ F)
 External Diar. of Tubes $3\frac{1}{2}"$
 Material " IRON
 Thickness of Furnace Plates Approved $9\frac{1}{16}"$
 " " " in Boilers " "
 Smallest outside Diar. of Furnaces $3'-7\frac{1}{8}"$
 Length between Tube Plates $7'-7"$
 Width of Combustion Chambers (Front to Back) $3'-0"$ (MEAN)
 Thickness of " " Tops Approved $4\frac{1}{64}"$
 " " " in Boilers " "
 Pitch of Screwed Stays in C.C. Tops $8\frac{1}{2}"$ & $8\frac{1}{2}"$



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Diam. of Screwed Stays Approved	$1\frac{3}{4}$ "	Threads per Inch	9
" " " in Boilers	"	"	"
Material " "		STEEL	
Thickness of Combustion Chamber Sides Approved			$\frac{41}{64}$ "
" " " " in Boilers			$\frac{5}{8}$ "
Pitch of Screwed Stays in C.C. Sides			$8\frac{1}{2}$ "
Diam. " " Approved	$1\frac{3}{4}$ "	Threads per Inch	9
" " " in Boilers	"	"	"
Material " "		STEEL	
Thickness of Combustion Chamber Backs Approved			$\frac{41}{64}$ "
" " " " in Boilers			"
Pitch of Screwed Stays in C.C. Backs			9"
Diam. " " Approved	$2\frac{1}{4}$ " & 2"	Threads per Inch	9
" " " in Boilers	"	"	"
Material " "		STEEL	
Are all Screwed Stays fitted with Nuts inside C.C.?		YES	
Thickness of Combustion Chamber Bottoms			$\frac{13}{16}$ "
No. of Girders over each Wing Chamber			4
" " " Centre "			4
Depth and Thickness of Girders			9" x 2 - $\frac{7}{8}$ " PLATES
Material of Girders			IRON
No. of Stays in each			3
No. of Tubes, each Boiler	170 RAIN, 73 STAY, 243 TOTAL		
Size of Lower Manholes			16" x 12"

VERTICAL DONKEY BOILERS

No. of Boilers ONE
 Gross H.P. 12-0
 Height of Boiler from base 12-11
 Diameter of Boilers 3-0
 Thickness of Plates 3-0
 Description of seams in boiler 2-0
 Diam. of Water Pipes 2-0
 Height of Water Pipes 2-0
 Are Water Pipes fitted or Disposed? 2-0
 Thickness of Plates 2-0
 No. of Crown Plates 2-0
 Material of Crown Plates 2-0
 Material of Water Pipes 2-0
 Material of Water Pipes 2-0
 Size of Manhole in Shell 2-0
 Thickness of Water Pipes 2-0
 Description of Water Pipes 2-0

SUPERHEATERS



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VERTICAL DONKEY BOILERS.

No. of Boilers ONE Type COCHRAN VERTICAL MULTITUBULAR
 Greatest Int. Diar. 7'-0" Height 15'-0" OVERALL
 Height of Boiler Crown above Fire Grate 12'-11"
 Are Boiler Crowns Flat or Dished? DISHED
 Internal Radius of Dished Ends 3'-6" Thickness of Plates 7/8"
 Description of Seams in Boiler Crowns 2 5/8" LAP SINGLE RIVETED 2 1/8" PITCH 13/16" RIVETS
 Diar. of Rivet Holes 27/32" Pitch 2 1/8" Width of Overlap 2 5/8"
 Height of Firebox Crowns above Fire Grate 2'-10 1/4"
 Are Firebox Crowns Flat or Dished? DISHED
 External Radius of Dished Crowns 3'-0" Thickness of Plates 1 7/32"
 No. of Crown Stays — Diar. — Material —
 External Diar. of Firebox at Top — Bottom 5'-0" Thickness of Plates 1 7/32"
 No. of ^{SMOKE} Water Tubes 173 Ext. Diar. 2 1/2" Thickness 9 LSG & 1 1/32"
 Material of ^{SMOKE} Water Tubes LAP WELDED IRON.
 Size of Manhole in Shell 16" x 12"
 Dimensions of Compensating Ring 2'-4" DIA x 1 1/16" THICK.
 Heating Surface, each Boiler 600 SQ FT. Grate Surface 26.75 ϕ

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	3		
Material	COPPER		
Brazed, Welded or Seamless	SEAMLESS		
Internal Diam.	4 1/4		
Thickness	7WG.		
How are Flanges secured?	BRAZED		
Date of Hydraulic Test	15-4-24		
Test Pressure	360 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			

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			
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diam.			
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. ONE	Type	CONTRA FLOW.	VB148
Makers	CONTRAFLO CONDENSER & KINETIC CO LTD LONDON.		
Working Pressure	180	Test Pressure	450 lbs
		Date of Test	

FEED WATER FILTERS.

No. ONE	Type	SUCTION	Size	VB196.
Makers	CONTRAFLO CONDENSER & KINETIC CO LTD			
Working Pressure	ATMOS.	Test Pressure	ATMOS.	Date of Test
		29-4-24.		

LIST OF DONKEY PUMPS.

N^o 12282

GENERAL SERVICE PUMP T. LAMONT & CO CYL 6" PUMP 1 1/2" STROKE 6"
SUCTIONS BILGE MAIN, CONDENSER, DIRECT BILGE, TANKS, SEA, HOTWELL, FILTER.
DELIVERY HOSE, DECK, OVERBOARD SEA TANKS, BOILERS.

N^o 12280

BALLAST PUMP T. LAMONT & CO CYL 9" PUMP 10" STROKE 10"
SUCTIONS BILGES SEA TANKS
DELIVERY OVERBOARD, JET CONDENSER, CONDENSER, TANKS.

N^o 12284

DONKEY PUMP T. LAMONT & CO CYL 4 1/2" PUMP 3" STROKE 6"
SUCTIONS SEA TANKS HOTWELL
DELIVERY DONKEY BOILER MAIN FEED



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SPARE GEAR

No. of Top End Bolts	2	No. of Bot. End Bolts	2	No. of Cylinder Cover Studs	2
" Coupling Bolts	6	" Main Bearing Bolts	2	" Valve Chest	18
" Junk Ring Bolts	12	" Feed Pump Valves	-	" Bilge Pump Valves	-
" H.P. Piston Rings	-	" I.P. Piston Rings	-	" L.P. Piston Rings	-
" Springs	-	" Springs	-	" Springs	-
" Safety Valve	4	" Fire Bars	1 SET	" Feed Check Valves	2 ALX. 2 MAIN. 1 DB.
" Piston Rods	-	" Connecting Rods	-	" Valve Spindles	-
" Air Pump Rods	-	" Air Pump Buckets	-	" Air Pump Valves	1 SET
" Cir.	-	" Cir.	-	" Cir.	-
" Crank Shafts	-	" Crank Pin Bushes	1 SET	" Crosshead Bushes	1 SET
" Propeller Shafts	107	" Propellers	-	" Propeller Blades	-
" Boiler Tubes	18	" Condenser Tubes	24	" Condenser Ferrules	6

OTHER ARTICLES OF SPARE GEAR:-

12 PINS FOR VALVE FACE.

1 PAIR TOP END BUSHES

1 " BOT "

2 BOLTS & NUTS HP, MP, & LP ECC STRAPS

1 RUBBER RING FOR SHIP

12 BILGE VALVES

1 SPRING EACH SIZE

REFRIGERATORS



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REFRIGERATORS.

No. of Machines — Capacity of each —
 Makers —
 Description NONE
 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.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after hours.			
Makers of Engines	Continental	Continental	Continental	Continental			
Power — 2 KW 80	100	100	300	—			
Current Alternating or Continuous	CONTINUOUS						
Single or Double Wire System	DOUBLE WIRE SYSTEM						
Position of Engines	ENGINE RM	STEERING PLATFORM					
Main Switch Board	"	"					
No. of Circuits to which switches are provided on Main Switch Board			2				
Particulars of these Engines—							
Speed	Revolutions per Minute	Quality of Steam	Current per Ampere	Watts	Calories	Efficiency	Remarks
COMMUNICATION	21	16	0	7/026	14287	100%	2500
BRIDGE	15	16	0.5	7/02	930		
MAIN DECK	12	16	0	7/02	837		
GAUGE	16	17	0	7/026	1000		
ENGINE ROOM	24	16	12	7/026	1700		
FORWARD	9	16	4.5	7/026	640		
HELDS	51	16	26	7/026	1006		
ILLUMINATION	12	16	7.5	7/026	1070		

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



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COMPARTMENT

Temp. at beginning of trial

Temp. at end of trial

Time required to cool to this temp.

Time required to heat to this temp.

Time of trial

NONE

ELECTRIC LIGHTING.

Installation Fitted by **MESSRS. TELFORD GRIER & MACKAY LTD. GLASGOW.**

No. and Description of Dynamos **ONE COMPOUND WOUND 4 POLE NO 50820.**

Makers of Dynamos **LANCASHIRE DYNAMO & MOTOR CO LTD. SIZE 9 1/4**

Capacity . " **8KW 80** Amperes, at **100** Volts, **300** Revols. per Min.

Current Alternating or Continuous **CONTINUOUS.**

Single or Double Wire System **DOUBLE WIRE SYSTEM.**

Position of Dynamos **ENGINE RM. STARTING PLATFORM**

" Main Switch Board " " " "

No. of Circuits to which Switches are provided on Main Switch Board **8.**

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 ACCOMMODATION.	21	16	10	7/036	1428%	100%	2500
2 BRIDGE.	15	16	6.5	7/036	930	"	"
3 MAIN DECK	12	16	6	7/036	857	"	"
4 BRIDGE "	16	16	7	7/036	1000	"	"
5 ENGINE ROOM.	24	16	12	7/036	1700	"	"
6 FORWARD.	9	16	4.5	7/036	640	"	"
7 HOLDS.	51	16	26	7/064	1156	"	"
8 NAVIGATION.	12	various	7.5	7/036	1070	"	"

Total No. of Lights **160** No. of Motors driving Fans, &c. No. of Heaters

Current required for Motors and Heaters



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[illegible]

How are Conductors in Engine and Boiler Spaces protected? *Lead covered & armoured*

„ Saloons, State Rooms, &c., „ ? „

What special protection is provided in the following cases?—

- (1) Conductors exposed to Heat or Damp *Armoured.*
- (2) " " passing through Bunkers or Cargo Spaces *001*
- (3) " " Deck Beams or Bulkheads *Deck tubes not glands*

is unimpaired? *time*

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

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? N. 1

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

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 29. 4. 24 Duration of Trial 6 hrs

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

Robert H. Greig

The above correctly describes the Machinery of the U.S.

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. "BRORA"

as ascertained by **me** from personal examination

Robert L. Craig
 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 ... : :

Total ... £ : :

It is submitted that this Report be approved.

Joe Barr for Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the 14th May 1924

Fees advised

Fees paid



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Lloyd's Register
 Foundation
 Secretary.

GENERAL CONSTRUCTION

Less--

MAIN BOILER

The main boiler is of the vertical type and is constructed of steel plate and is provided with the following fittings:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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It is submitted that this Report be approved.

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

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

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