

No. 2229

10/232

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2241 No. in Register Book 3655

S.S. "COBARGO" No 410

Makers of Engines THE AILSA SHIPBUILDING CO. LTD

Works No. 145

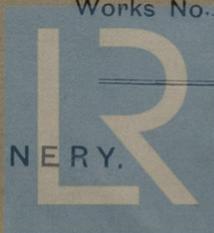
Makers of Main Boilers D. ROWAN & CO. LTD

Works No. B.368.

Makers of Donkey Boiler

Works No.

MACHINERY.



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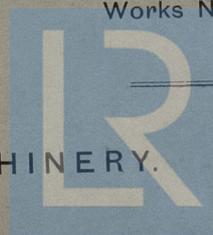
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Report No. No. in Register Book

Received at Head Office 31st May 1929.

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

— " COBARGO " —

Official No.

Port of Registry

Registered Owners THE ILLAWARRA & SOUTH COAST STEAM

NAVIGATION & L^{td}. SYDNEY, N.S.W.

Engines Built by THE AILSA SHIPBUILDING & L^{td}

at TROON.

Main Boilers Built by D. ROWAN & C. L^{td}

at GLASGOW.

Donkey " " "

at

Date of Completion

30/5/29

First Visit 16-10-28

Last Visit

30/5/29 Total Visits 25

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RECIPROCATING ENGINES.

Works No. 145 No. of Sets 2 Description

TRIPLE EXPANSION, SURFACE CONDENSING, RECIPROCATING.
TWIN SCREW

No. of Cylinders each Engine	3	No. of Cranks	3
Diars of Cylinders	12½", 20", 32"	Stroke	24"
Cubic feet in each L.P. Cylinder	111		
Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.?		YES	
" " " each Receiver?		TOP ONLY	
Type of H.P. Valves,	PISTON		
1st I.P. "	ANDREWS & CAMERON		
2nd I.P.,	✓		
L.P. "	DOUBLE PORTED SLIDE		
" Valve Gear	STEPHENSON'S LINK MOTION		
" Condenser	BUILT	Cooling Surface	580 sq. ft. each
Diameter of Piston Rods (plain part)	3½"	Screwed part (bottom of thread)	2¾"
Material "	MILD STEEL		
Diars. of Connecting Rods (smallest part)	3¾"	Material	STEEL
" Crosshead Gudgeons	3½"	Length of Bearing	3½" Material STEEL
No. of Crosshead Bolts (each)	4	Diars. over Thrd.	1½" Thrds. per inch 6 Material STEEL
" Crank Pin " "	2	" 2"	" 4½" "
" Main Bearings	6	Lengths	6¾"
" Bolts in each	2	Diars. over Thread	1¾" Threads per inch 5 Material STEEL
" Holding Down Bolts, each Engine	49	Diars.	1" No. of Metal Chocks 49.

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

BUILT SEAT

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

If not, how are they fitted?

Connecting Rods, Forged by	THE LANGLEY FORGE @. L ^{td}	
Piston " "	D. COLVILLE & SONS, L ^{td}	
Crossheads, " "	THE LANGLEY FORGE @. L ^{td}	
Connecting Rods, Finished by	THE AILSA SHIPBUILDING @. L ^{td}	
Piston " "	DITTO	
Crossheads, " "	Do.	
Date of Harbour Trial	24/5/29.	
" Trial Trip	30/5/29.	
Trials run at	Troon to Skelmorlie mile & back.	
Were the Engines tested to full power under Sea-going conditions?	YES.	
If so, what was the I.H.P.?	1000	Revs. per min. 120
Pressure in Receiver Receiver, ^{H.P.} 178 lbs., 2nd I.P. I.P., 69 lbs., L.P., 12½ lbs., Vacuum, 25 ins.		
Speed on Trial	11.309 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.	870 (TOTAL)	Revs. per min. 117
Estimated Speed	11 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.
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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.

Type of Turbine Block

No. of Shafts

Diam. of Turbine Shafts at bottom of turbine

At Air Coupling

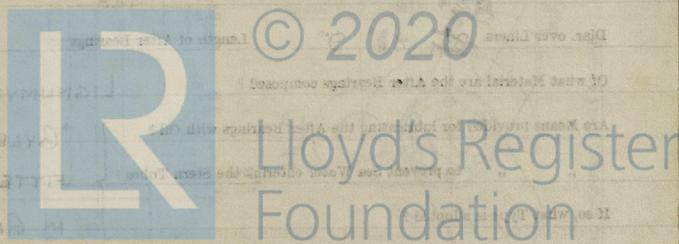
No. of Bolts each Coupling

Diam. of Pinion Gears

At Coupling

Diam. of Propeller Shafts by Bolt

Are Propeller Shafts fixed with continuous brass liners?



SHAFTING.

Are the Crank Shafts Built or Solid? **BUILT**

No. of Lengths in each **3** Angle of Cranks **120°**

Diar. by Rule **6.53"** Actual **6 $\frac{3}{4}$ "** In Way of Webs **6 $\frac{7}{8}$ "**

" of Crank Pins **6 $\frac{3}{4}$ "** Length between Webs **6 $\frac{3}{4}$ "**

Greatest Width of Crank Webs **12 $\frac{5}{8}$ "** Thickness **4 $\frac{1}{8}$ "**

Least " " **12 $\frac{5}{8}$ "** " **4 $\frac{1}{8}$ "**

Diar. of Keys in Crank Webs **1 $\frac{1}{2}$ " x $\frac{3}{4}$ "** Length **4 $\frac{1}{8}$ "**

" Dowels in Crank Pins **NONE** Length Screwed or Plain

No. of Bolts each Coupling **6** Diar. at Mid Length **1 $\frac{1}{2}$ "** Diar. of Pitch Circle **10 $\frac{3}{4}$ "**

Greatest Distance from Edge of Main Bearing to Crank Web **CLEARANCE**

Type of Thrust Blocks **MICHELL**

No. " Rings

Diar. of Thrust Shafts at bottom of Collars **6 $\frac{3}{4}$ "** No. of Collars **ONE**

" " Forward Coupling **6 $\frac{3}{4}$ "** At Aft Coupling **6 $\frac{3}{4}$ "**

Diar. of Intermediate Shafting by Rule **6.219"** Actual **6 $\frac{3}{16}$ "** No. of Lengths **3 P. 3 S.**

No. of Bolts, each Coupling **6** Diar. at Mid Length **1 $\frac{1}{2}$ "** Diar. of Pitch Circle **10 $\frac{3}{4}$ "**

Diar. of Propeller Shafts by Rule **6.927"** Actual **7 $\frac{1}{8}$ "** At Couplings **6 $\frac{3}{4}$ "**

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

Diar. over Liners **8 $\frac{3}{8}$ "**, **9"** Length of Aft Bearings **2'-4 $\frac{1}{2}$ "**

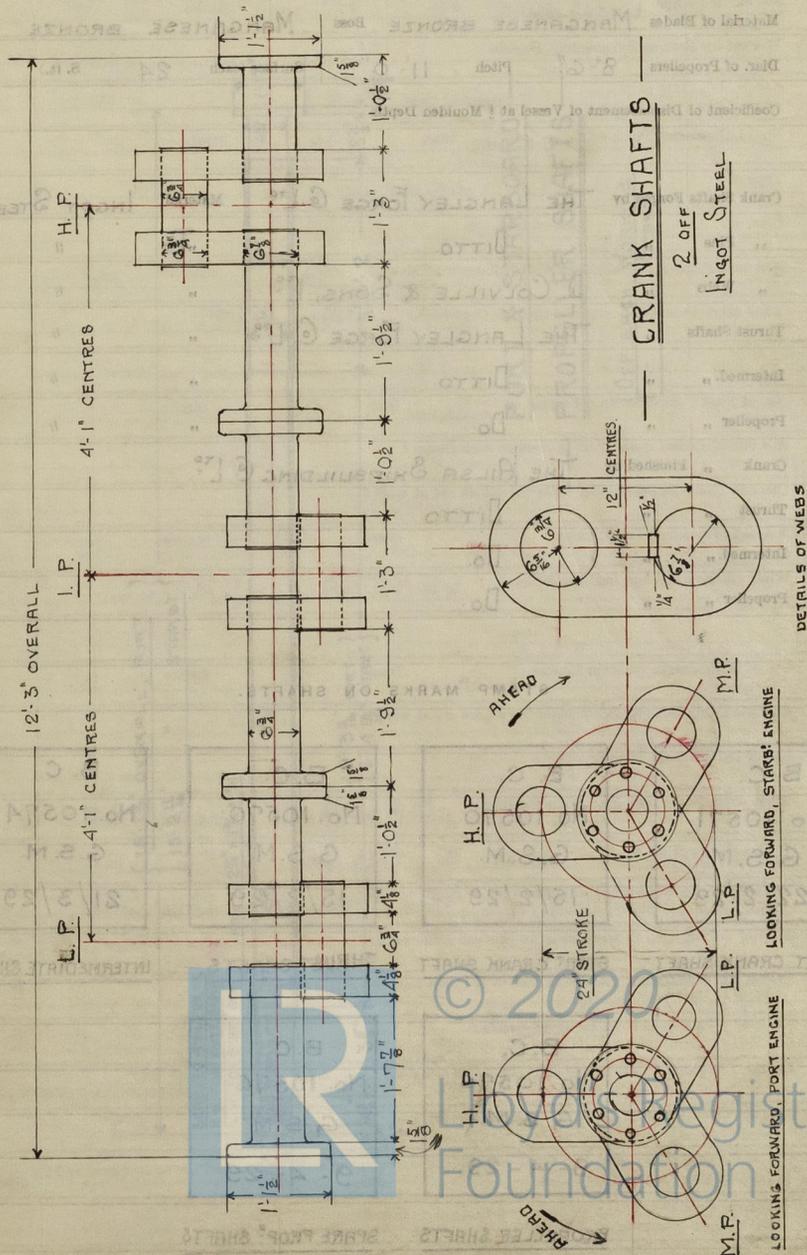
Of what Material are the Aft Bearings composed? **LIGNUMVITAE**

Are Means provided for lubricating the Aft Bearings with Oil? **"GYLER" TYPE, TO BE**

" " to prevent Sea Water entering the Stern Tubes? **FITTED AFTER ARRIVAL**

If so, what Type is adopted? **IN AUSTRALIA.**

SKETCH OF CRANK SHAFT.



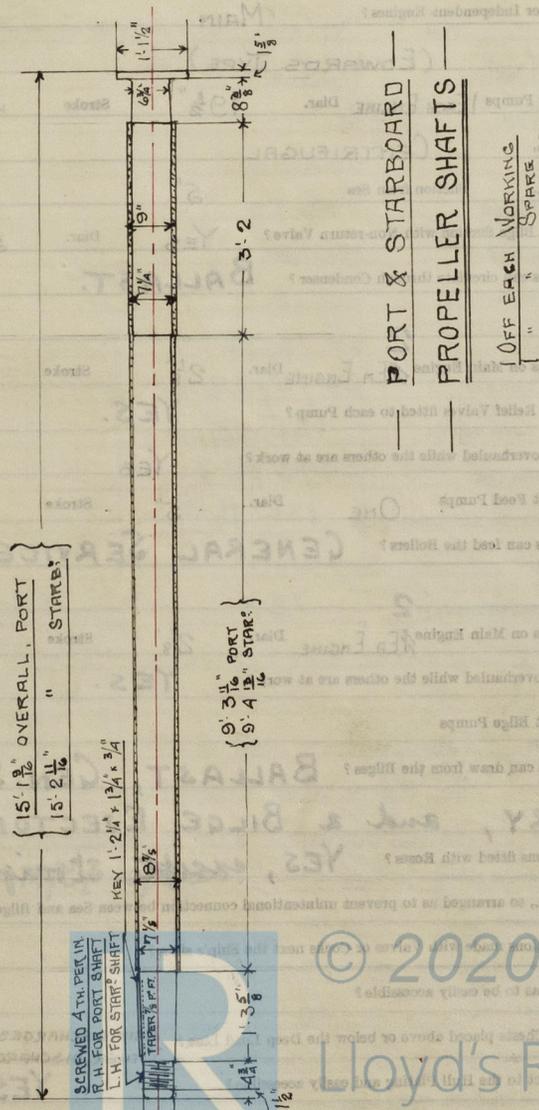
No. of Blades each Propeller 4 Fitted or Solid? SOLID
 Material of Blades MANGANESE BRONZE Boss MANGANESE BRONZE
 Diam. of Propellers 8'-6" Pitch 11'-0" Surface (each 24 S. ft.)
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth

Crank Shafts Forged by THE LANGLEY FORGE & CO. LTD. Material INGOT STEEL
 " Pins " DITTO. " " "
 " Webs " D. COLVILLE & SONS, LTD. " " "
 Thrust Shafts " THE LANGLEY FORGE & CO. LTD. " " "
 Intermed. " " DITTO. " " "
 Propeller " " Do. " " "
 Crank " Finished by THE AILSA SHIPBUILDING & CO. LTD.
 Thrust " " DITTO
 Intermed. " " Do.
 Propeller " " Do.

STAMP MARKS ON SHAFTS.

B. C. No. 10571 G. S. M. 22/2/29	B. C. No. 10570 G. S. M. 15/2/29	B. C. No. 10570 G. S. M. 15/2/29	B. C. No. 10574 G. S. M. 21/3/29
PORT CRANK SHAFT	STARBOARD CRANK SHAFT	THRUST SHAFTS	INTERMEDIATE SHAFTS
B. C. No. 10576 G. S. M. 9-4-29	B. C. No. 10576 G. S. M. 9-4-29		
PROPELLER SHAFTS	SPARE PROPELLER SHAFTS		

SKETCH OF PROPELLER SHAFT.



BOILERS.

Works No. B. 368

No. of Boilers 2 Type CYLINDRICAL, MULTITUBULAR

Single or Double-ended SINGLE

No. of Furnaces in each 2

Type of Furnaces DEIGHTON

Date when Plan approved 28-9-28

Approved Working Pressure 180 LBS.

Hydraulic Test Pressure 320 LBS.

Date of Hydraulic Test 28-12-28

„ when Safety Valves set 24/5/29

Pressure at which Valves were set 185 lb/o"

Date of Accumulation Test 24/5/29

Maximum Pressure under Accumulation Test 185 lb/o"

System of Draught NATURAL

Can Boilers be worked separately? YES.

Makers of Plates THE STEEL CO. OF SCOTLAND, LT^o

„ Stay Bars THE CONSETT IRON CO. LT^o

„ Rivets THE NORTH WEST RIVET, BOLT & NUT FACTORY

„ Furnaces JOHN MARSHALL & CO. (MOTHERWELL) LT^o

Greatest Internal Diam. of Boilers 11'0"

„ „ Length „ 13'9"

Square Feet of Heating Surface each Boiler 1755

„ „ Grate „ „ 48

No. of Safety Valves each Boiler 2 Rule Diam. 1 1/2" High Lift 2 1/2" Actual 2 1/2" High Lift

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.

STAMP MARK ON BOILERS.

B. C. TEST
 No. 5133
 T.P. 320 Lbs.
 W.P. 180 Lbs.
 G. M. L.
 28-12-28



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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? **PIPES**

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

Are Blow-off Cocks or Valves fitted on Boiler Shells? **VALVES on back ends.**

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

„ Plates in each Strake **2**

Thickness of Shell Plates Approved **$1\frac{3}{32}$ "**

„ „ in Boilers **11**

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 **$\frac{27}{32}$ "**

„ inside „ **$\frac{31}{32}$ "**

Are Longitudinal Seams Hand or Machine Riveted? **MACHINE.**

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

No. of Rivets in a Pitch **5**

Diar. of Rivet Holes **$1\frac{3}{16}$ "** Pitch **8"**

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 **2**

Are these Seams Hand or Machine riveted? **HAND.**

Diar. of Rivet Holes **$1\frac{3}{16}$ "** Pitch **$3\frac{1}{2}$ "**

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

Are these Seams Hand or Machine Riveted? **MACHINE.**

Diar. of Rivet Holes **$1\frac{3}{16}$ "** Pitch **$3\frac{1}{2}$ "**

Size of Manholes in Shell **17" x 13"**

Dimensions of Compensating Rings **2'-11" x 2'-7" x $1\frac{3}{32}$ "**



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Thickness of End Plates in Steam Space Approved $\frac{1}{8}$ "

" " " " " in Boilers $\frac{1}{8}$ "

Pitch of Steam Space Stays $19" \times 21"$

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

" " " " " in Boilers $2\frac{3}{4}" \& 2\frac{1}{2}"$ " 6

Material of " " " STEEL

How are Stays Secured? DOUBLE NUTS

Diar. and Thickness of Loose Washers on End Plates ✓

" " Riveted " " ✓

Width " " Doubling Strips " ✓

Thickness of Middle Back End Plates Approved $\frac{3}{4}"$

" " " " " in Boilers $\frac{3}{4}"$

Thickness of Doublings in Wide Spaces between Fireboxes ✓

Pitch of Stays at " " " " " MACHINE.

Diar. of Stays Approved $1\frac{7}{8}" \& 2"$ Threads per Inch 9

" " in Boilers $1\frac{7}{8}" \& 2"$ " 9

Material " STEEL

Are Stays fitted with Nuts outside? YES

Thickness of Back End Plates at Bottom Approved $\frac{3}{4}"$

" " " " " in Boilers $\frac{3}{4}"$

Pitch of Stays at Wide Spaces between Fireboxes $8\frac{3}{4}"$

Thickness of Doublings in " " ✓

Thickness of Front End Plates at Bottom Approved $\frac{27}{32}"$

" " " " " in Boilers $\frac{27}{32}"$

No. of Longitudinal Stays in Spaces between Furnaces 3



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Diar. of Stays Approved	2"	Threads per Inch	6
" " in Boilers	2"		6
Material "			STEEL
Thickness of Front Tube Plates Approved			$\frac{27}{32}$ "
" " " " in Boilers			$\frac{21}{32}$ "
Pitch of Stay Tubes at Spaces between Stacks of Tubes			$8\frac{3}{4}$ "
Thickness of Doublings in " " "			✓
" Stay Tubes at " " "			$\frac{5}{16}$ "
Are Stay Tubes fitted with Nuts at Front End?			10 ONLY
Thickness of Back Tube Plates Approved			$\frac{23}{32}$ "
" " " in Boilers			$\frac{23}{32}$ "
Pitch of Stay Tubes in Back Tube Plates			9" & $13\frac{1}{2}$ "
" Plain "			$4\frac{1}{2}$ "
Thickness of Stay Tubes			$\frac{1}{4}$ ", $\frac{5}{16}$ " & $\frac{3}{8}$ "
" Plain "			8 W.G.
External Diar. of Tubes			$3\frac{1}{4}$ "
Material "			IRON
Thickness of Furnace Plates Approved			$\frac{30}{64}$ "
" " " in Boilers			$\frac{39}{64}$ "
Smallest outside Diar. of Furnaces			$4' - 1\frac{1}{32}"$
Length between Tube Plates			$7' - 2"$
Width of Combustion Chambers (Front to Back)			$2' - 11\frac{5}{8}"$ MEAN
Thickness of " " Tops Approved			$\frac{5}{8}$ "
" " " " in Boilers			$\frac{5}{8}$ "
Pitch of Screwed Stays in C.C. Tops			$8\frac{1}{4}"$

Diar. of Screwed Stays Approved		Threads per Inch	6
" " in Boilers			6
Material "			STEEL
Thickness of Combustion Chamber Plates Approved			$\frac{27}{32}$ "
" " " " in Boilers			$\frac{21}{32}$ "
Pitch of Screwed Stays in C.C. Stacks			$8\frac{3}{4}$ "
Diar. of " " Approved		Threads per Inch	6
" " in Boilers			6
Material "			STEEL
Thickness of Combustion Chamber Backs Approved			$\frac{23}{32}$ "
" " " in Boilers			$\frac{23}{32}$ "
Pitch of Screwed Stays in C.C. Backs			9" & $13\frac{1}{2}$ "
Diar. of " " Approved		Threads per Inch	6
" " in Boilers			6
Material "			STEEL
Are all Screwed Stays fitted with Nuts inside C.C.?			ALL EXCEPT WITS AT BOTTOM END
Thickness of Combustion Chamber Bottoms			$\frac{30}{64}$ "
No. of Stays over each Wing Chamber			2
" " Centre			2
Depth and Thickness of Grates			$8\frac{1}{2}$ " x $1\frac{1}{2}$ " PLATES
Material of Grates			STEEL
No. of Stays in each			2
No. of Stays in each			2
Size of Lower Stays			$1\frac{1}{2}$ " x $1\frac{1}{2}$ "



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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	$\frac{5}{8}$ "
" " " " in Boilers	$\frac{5}{8}$ "
Pitch of Screwed Stays in C.O. Sides	$8" \times 8\frac{1}{4}"$ TO $8\frac{5}{8}"$

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	$\frac{21}{32}$ "
" " " " in Boilers	$\frac{21}{32}$ "
Pitch of Screwed Stays in C.O. Backs	$8\frac{3}{4}"$

Diar. " " Approved	$1\frac{3}{4}"$, $1\frac{7}{8}"$, $2"$	Threads per Inch	9
" " " in Boilers	$1\frac{3}{4}"$, $1\frac{7}{8}"$, $2"$		9
Material " "			STEEL

Are all Screwed Stays fitted with Nuts inside C.O.? ALL EXCEPT NUTS AT BOTTOM END

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

No. of Girders over each Wing Chamber	5
" " " Centre "	✓
Depth and Thickness of Girders	$8\frac{3}{8}" \times \frac{7}{8}"$ PLATES
Material of Girders	STEEL
No. of Stays in each	3

No. of Tubes, each Boiler 168 PLAIN, 68 STAY, 238 TOTAL

Size of Lower Manholes $17" \times 13"$

VERTICAL DONKEY BOILERS

No. of Boilers	Type
Greatest Int. Diam.	Height
Height of Boiler Crown above Fire Grate	Are Boiler Crowns Flat or Dished?
Internal Radius of Dished Ends	Description of Seams in Boiler Crowns
Thickness of Plates	Diam. of Rivet Hoops
Width of Overlap	Height of Firebox Crown above Fire Grate
Are Firebox Crowns Flat or Dished?	Internal Radius of Dished Crowns
Thickness of Plates	Diam. of Crown Stays
External Diam. of Firebox at Top	Bottom
Thickness	Ext. Diam.
No. of Water Tubes	Material 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
Where situated?
Which Boilers are connected to Superheaters?
Can Superheaters be shut out while Boilers are working?
No. of Safety Valves on each Superheater
Are they fitted with hand-lever?
Date of Hydraulic Test
Date when Safety Valves set



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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 Lappings	
Material	
Internal Width of Seams	
Internal Diar.	
Thickness	
How are Joints secured?	
Date of Hydraulic Test	
Test Pressure	
No. of Lappings	
Material	
Internal Width of Seams	
Internal Diar.	
Thickness	
How are Joints secured?	
Date of Hydraulic Test	
Test Pressure	

Made by Stewart & Lloyds

3 1/2" dia

17/2" dia

3 1/2" dia (Rivet Size)



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MAIN STEAM PIPES.

No. of Lengths	3		
Material	Steel.		
Brazed, Welded or Seamless	Seamless.		
Internal Diam.	3 $\frac{7}{8}$ "		
Thickness	$\frac{5}{16}$ "		
How are Flanges secured?	Screwed + expanded.		
Date of Hydraulic Test	17/5/29		
Test Pressure	540 lb/□" (Ralph Steel)		
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 BOILER PUMPS
EVAPORATORS

Made by Stewart & Lloyd Ltd.



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EVAPORATORS.

No. 1 Type CAST IRON No. 90349 Tons per Day 10
 Makers G. & J. WEIR, L^{td}
 Safety Valve set to Shell... 50 Lbs
 Working Pressure 25 LBS. Test Pressure Tubes... 400 Lbs Date of Test 28-1-29
 Date of Test of Safety Valves under Steam 29/5/29.

FEED WATER HEATERS.

No. 1 Type "DIRECT CONTACT" No. 90347 "17"
 Makers G. & J. WEIR, L^{td}
 Escape Set to Working Pressure 20 LBS. Test Pressure 40 LBS. Date of Test 26-2-29.

FEED WATER FILTERS.

No. ONE Type PRESSURE GRAVITATION Size
 Makers JOHN KIRKALDY, L^{td} No. 862
 Working Pressure 180 LBS. Test Pressure 450 LBS. Date of Test 7/5/29.

LIST OF DONKEY PUMPS.

MAIN FEED PUMP 1 OFF. G. & J. WEIR, L^{td} No. 90348 7" x 5" x 12"
 SUCTIONS:-
 DISCHARGES:-
 GENERAL SERVICE P/P 1 OFF. THOM, LAMONT & C. L^{td} No. 14692 7" x 4 1/2" x 8"
 SUCTIONS:-
 DISCHARGES:-
 BALLAST PUMP 1 OFF THOM, LAMONT & C. L^{td} No. 14691 7" x 7 1/2" x 8"
 SUCTIONS:-
 DISCHARGES:-
 FRESH WATER P/P 1 OFF. THOM, LAMONT & C. L^{td} No. 14694 3 1/4" x 3" x 4"
 SUCTIONS:-
 DISCHARGES:-
 SANITARY PUMP 1 OFF. THOM, LAMONT & C. L^{td} No. 14693 5" x 5" x 6"
 SUCTIONS:-
 DISCHARGES:-
 CIRCULATING P/P. 2 OFF. MATTHEW PAUL & C. L^{td} Nos. 8333/4 1 1/2" SUCTION.
 SUCTIONS:-
 DISCHARGE



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REFRIGERATORS.

No. of Machines *One* Capacity of each
 Makers *HASLAM & NEWTON, LTD, DERBY.*
 Description *5" x 5" compressor (single-acting)
 coupled direct to steam engine.*

No. of Steam Cylinders, each Machine *One.* No. of Compressors *One.* No. of Cranks *One.*

Particulars of Pumps in connection with Refrigerating Plant and whether worked by Refrigerating Machines

or Independently *Ballast, both main engine
 Sanitary, independent Sanitary, and
 General Service pumps can all be
 used to circulate condenser cooling
 water. (5) None worked by refrig.
 w/c.*

System of Refrigeration *Ammonia, direct expansion.*
 Insulation *Granulated cork.*

Are ~~Refrigerating~~ Regulating Valves placed so as to be accessible without entering the Insulated Spaces? *YES.*

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

Are all Bilge, Sounding, and Air Pipes in Insulated Spaces properly insulated? *(none.)*

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

Date of Test under Working Conditions *28th, 29th and 30th May, 1929.*
*28/5/29. System air-tested at 250 lb/sq" +
 leaks made good.*

29/5/29. W/c started 6-15 p.m. on butter-room.

30/5/29 W/c stopped 1-15 a.m. Temp. noted.

Gas Swinburne also etc.

RESULTS OF TRIALS.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after 12 hours.
<i>Butter room.</i>	<i>55° F.</i>	<i>8° F.</i>	<i>7 hours.</i>	<i>26° F.</i>
<i>Meat room.</i>	<i>60° F.</i>	<i>14° F.</i>	<i>2½ hours.</i>	<i>—</i>

(owing to delay in completing insulation of meat-room pipes, there was insufficient time to test rise of temperature. Both rooms were opened as soon as specified 15° F. had been reached in meat-room; and the atmosphere found to be sweet & clear.)

** not aboard when spare gear checked; but asked for by Surveyor (see correspondence).*

Articles of Spare Gear for Refrigerating Plant carried on board:— *One crank shaft,
 * one piston + rod for engine, * do. for compressor, * one
 slide valve spindle, one pr. main bearing bushes,
 2 bolts for same, one set piston + connecting rod
 bushes with bolts, one ecc. * rod + strap, one set of
 metallic packing rings for compressor, one set comp.
 suction + delivery valves, complete.*

ELECTRIC LIGHTING.

Installation Fitted by **Telford, Grier & McKay, L^o**
 No. and Description of Dynamos **One 1 KW. Compound-wound.**
 Makers of Dynamos **W. Sisson & Co. L^o**
 Capacity " **54/5** Amperes, at **115** Volts, **550** Revols. per Min. **6 K/W.**
 Current Alternating or Continuous **Continuous.**
 Single or Double Wire System **Double.**
 Position of Dynamos **Starboard side of engine room.**
 " Main Switch Board " " " " " "
 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.
Navigation	11	Various.	5	7/029	1111	100%	600 Meg.
Forward	27	"	9	7/036	1286	"	"
Bridge	21	"	10	"	1429	"	"
Midship	16	"	8	7/029	1778	"	"
Aft	17	30 watts.	5	"	1111	"	"
Engine Room	24	" "	7	"	1556	"	"

Total No. of Lights **116** No. of Motors driving Fans, &c. — No. of Heaters —

Current required for Motors and Heaters —

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.

"COBARGO."

as ascertained by ^{us} from personal examination

J. Wood Harrington.
 Geo. S. Macfarlane.
 Engineer Surveyors 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,

Walter King
 Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the 21st August 1929

Fees advised

Fees paid



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 Foundation
G. Allen Mason
 Secretary.

GENERAL CONSTRUCTION

MIR BOLERS	
Sp. A.	1
Sp. B.	1
DOCKET BOLERS	
Sp. A.	1
Sp. B.	1
L.P.O.	
Sp. A.	1
Sp. B.	1
Testing & ...	
Sp. A.	1
Sp. B.	1
Expenses	
Sp. A.	1
Sp. B.	1
Total	
Sp. A.	1
Sp. B.	1

It is admitted that this Report be approved.

[Handwritten signature]
 Approved by the Committee for the Class of M.E.S. on the
[Handwritten signature]

COPIES

[Handwritten signature]
 Wood Harrington
[Handwritten signature]
 W.S. Macfarlane



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Visits

mt.

7/5/29

15 "

24 "

28 "

29 "

30 "



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