

No. 2016

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 1848 No. in Register Book 3159

T.S.S. "CATALA"

Makers of Engines CAMPBELL & CALDERWOOD LTD

Works No. 1033

Makers of Main Boilers WALLSEND SUBWAY & ENG. CO LTD

Works No. —

Makers of Donkey Boiler NONE

Works No. —

MACHINERY.



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003778-003787-0024



No.

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 1848 No. in Register Book 3159

Received at Head Office 30<sup>th</sup> May 1925

Surveyor's Report on the New Engines, Boilers, and Auxiliary  
Machinery of the <sup>Single Triple</sup> ~~Twin Quadruple~~ Screw Steamer

"CATALA"

Official No. Port of Registry VANCOUVER B.C.

Registered Owners THE UNION STEAMSHIP CO OF  
BRITISH COLUMBIA.

Engines Built by MESSRS. CAMPBELL & CALDERWOOD LTD  
at PAISLEY.

Main Boilers Built by WALLSEND SLIPWAY & ENG CO LTD

at WALLSEND.

Donkey " " —

at —

Date of Completion 27.5.25.

First Visit 17.10.24. Last Visit 26.5.25. Total Visits 3A



## RECIPROCATING ENGINES.

Works No. 1033

No. of Sets 2

Description TRIPLE EXPANSION,

SURFACE CONDENSING, THREE CRANKS, DIRECT ACTING INVERTED  
RECIPROCATING

No. of Cylinders each Engine 3 No. of Cranks 3  
 Diars of Cylinders 16" 26" 44" Stroke 26"  
 Cubic feet in each L.P. Cylinder 22.8  
 Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr? YES.  
 " " " each Receiver? YES.

Type of H.P. Valves, PISTON VALVE.

1st L.P. "

2nd L.P. "

L.P. " ANDREWS &amp; CAMERON DOUBLE PORTED.

Valve Gear STEPHANSON'S LINK MOTION

Condenser SHARPE CONDENSER (BUILT) Cooling Surface 1850 sq. ft.

Diameter of Piston Rods (plain part) 4 1/2" Screwed part (bottom of thread) 3 1/6"

Material " MILD STEEL.

Diar. of Connecting Rods (smallest part) 4 1/4" Material M. S.

Crosshead Gudgeons 4 3/4" Length of Bearing 10 3/8" Material M. S.

No. of Crosshead Bolts (each) 4 Diar. over Thrd. 2 1/8" Thrds. per inch 8 Material W.I.

Crank Pin " 2 " 2 5/8" " 6 " W.I.

Main Bearings 6 Lengths 10 7/8"

Bolts in each 2 Diar. over Thread 2 3/8" Threads per inch 6 Material W.I.

X Holding Down Bolts, each Engine 58 SEE NOTE Diar. 1 1/4" No. of Metal Checks 40 EACH  
12 3/4" CENTRE

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?

NO

If not, how are they fitted? BOLTS THRO' GIRDERS.

X 50 BOLTS 1 1/8"

8 " 1 1/4" FITTED.

Connecting Rods, Forged by LANGLEY FORGE CO LTD

Piston " " " " " " " " " " " "

Crossheads, " " " " " " " " " " " "

Connecting Rods, Finished by CAMPBELL &amp; CALDERWOOD LTD &amp; HAWTHORNS &amp; CO LTD LEITH.

Piston " " " " " " " " " " " "

Crossheads, " " " " " " " " " " " "

Date of Harbour Trial 9-5-25

" Trial Trip 26-5-25

Trials run at FORFARSHIRE COAST

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

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

Revol. per min.

Pressure in 1st I.P. Receiver, lbs., 2nd I.P., lbs., L.P., lbs., Vacuum, ins.

Speed on Trial

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

data:—

Builders' estimated I.H.P. 2000

Revol. per min. 140

Estimated Speed 14 KNOTS

NOTE:— PORT ENGINES BUILT BY CAMPBELL &amp; CALDERWOOD LTD

STARBOARD ENGINES " " HAWTHORNS &amp; CO LTD LEITH.

THE MAKERS OF FORGINGS MENTIONED ABOVE ARE THOSE FOR  
THE PORT ENGINES.

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Description of Generators

Is Single or Double Reduction Gear employed? \_\_\_\_\_

Description of Motors

Estimated Pressure per lineal inch \_\_\_\_\_

Estimated Pressure per lineal inch

Revol. 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 Revols. per min.	S.H.P.
10	10.0	100	100
15	15.0	150	150
20	20.0	200	200
25	25.0	250	250
30	30.0	300	300
35	35.0	350	350
40	40.0	400	400
45	45.0	450	450
50	50.0	500	500
55	55.0	550	550
60	60.0	600	600
65	65.0	650	650
70	70.0	700	700
75	75.0	750	750
80	80.0	800	800
85	85.0	850	850
90	90.0	900	900
95	95.0	950	950
100	100.0	1000	1000

Generators

No. of lengths in each	Angle of Cranks	Motors
One	90°	
Two	180°	
Three	270°	
Four	360°	
Five	450°	
Six	540°	
Seven	630°	
Eight	720°	
Nine	810°	
Ten	900°	
Eleven	990°	
Twelve	1080°	
Thirteen	1170°	
Fourteen	1260°	
Fifteen	1350°	
Sixteen	1440°	
Seventeen	1530°	
Eighteen	1620°	
Nineteen	1710°	
Twenty	1800°	
Twenty-one	1890°	
Twenty-two	1980°	
Twenty-three	2070°	
Twenty-four	2160°	
Twenty-five	2250°	
Twenty-six	2340°	
Twenty-seven	2430°	
Twenty-eight	2520°	
Twenty-nine	2610°	
Thirty	2700°	
Thirty-one	2790°	
Thirty-two	2880°	
Thirty-three	2970°	
Thirty-four	3060°	
Thirty-five	3150°	
Thirty-six	3240°	
Thirty-seven	3330°	
Thirty-eight	3420°	
Thirty-nine	3510°	
Forty	3600°	
Forty-one	3690°	
Forty-two	3780°	
Forty-three	3870°	
Forty-four	3960°	
Forty-five	4050°	
Forty-six	4140°	
Forty-seven	4230°	
Forty-eight	4320°	
Forty-nine	4410°	
Fifty	4500°	
Fifty-one	4590°	
Fifty-two	4680°	
Fifty-three	4770°	
Fifty-four	4860°	
Fifty-five	4950°	
Fifty-six	5040°	
Fifty-seven	5130°	
Fifty-eight	5220°	
Fifty-nine	5310°	
Sixty	5400°	
Sixty-one	5490°	
Sixty-two	5580°	
Sixty-three	5670°	
Sixty-four	5760°	
Sixty-five	5850°	
Sixty-six	5940°	
Sixty-seven	6030°	
Sixty-eight	6120°	
Sixty-nine	6210°	
Seventy	6300°	
Seventy-one	6390°	
Seventy-two	6480°	
Seventy-three	6570°	
Seventy-four	6660°	
Seventy-five	6750°	
Seventy-six	6840°	
Seventy-seven	6930°	
Seventy-eight	7020°	
Seventy-nine	7110°	
Eighty	7200°	
Eighty-one	7290°	
Eighty-two	7380°	
Eighty-three	7470°	
Eighty-four	7560°	
Eighty-five	7650°	
Eighty-six	7740°	
Eighty-seven	7830°	
Eighty-eight	7920°	
Eighty-nine	8010°	
Ninety	8100°	
Ninety-one	8190°	
Ninety-two	8280°	
Ninety-three	8370°	
Ninety-four	8460°	
Ninety-five	8550°	
Ninety-six	8640°	
Ninety-seven	8730°	
Ninety-eight	8820°	
Ninety-nine	8910°	
Hundred	9000°	

Reduction Gear

Turbine Spindles forged by

Wheels forged or cast by \_\_\_\_\_

Reduction Gear Shafts forged by \_\_\_\_\_

Wheels forged or cast by

### DESCRIPTION OF INSTALLATION.

Page of Thrust Blocks

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FOUNDATION

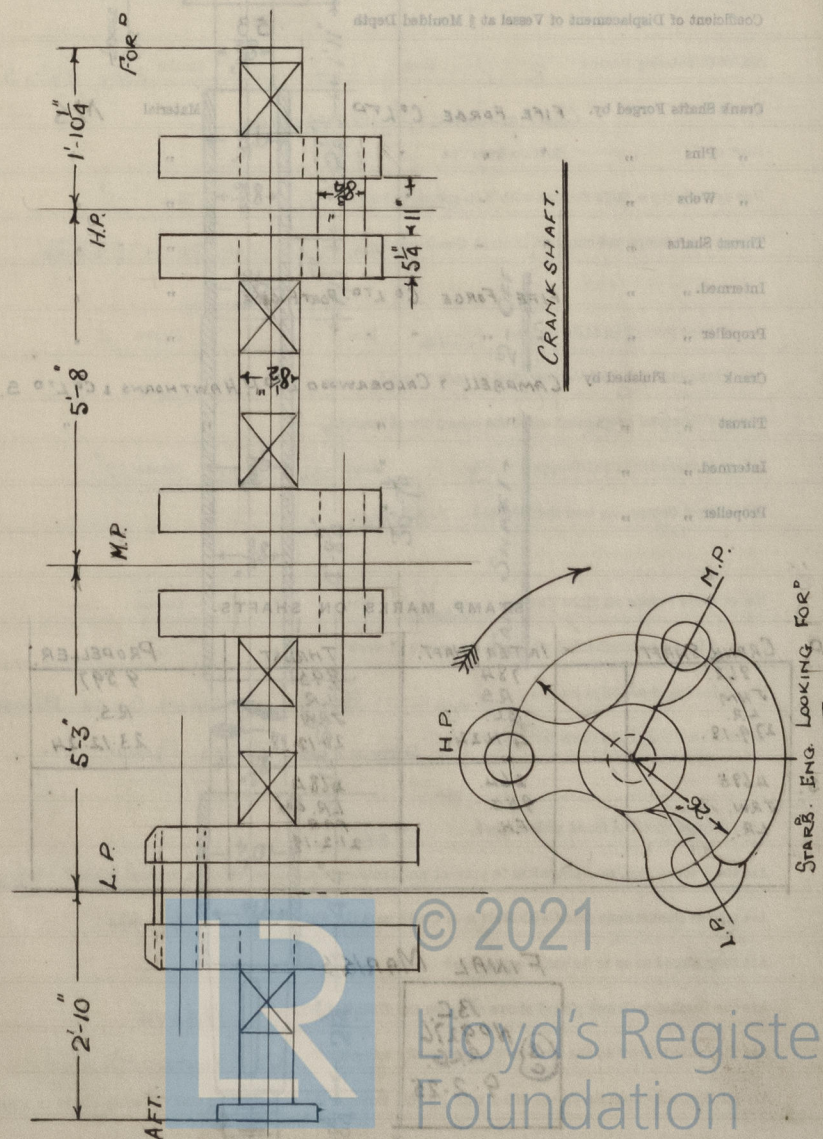
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## SHAFTING.

Are the Crank Shafts Built or Solid? *BUILT*No. of Lengths in each *ONE*. Angle of Cranks *120°*Diar. by Rule *8.25* Actual *8½"* In Way of Webs *8¾"*" of Crank Pins *8¾"* Length between Webs *11"*Greatest Width of Crank Webs *16"* Thickness *5¼"*Least " " *13"* " *5¼"*Diar. of Keys in Crank Webs *1½"* Length *4"*" Dowels in Crank Pins *1"* Length *3½"* Screwed or Plain *PLAIN*No. of Bolts each Coupling *6* Diar. at Mid Length *2"* Diar. of Pitch Circle *12½"*Greatest Distance from Edge of Main Bearing to Crank Web *¾"*Type of Thrust Blocks *HORSE SHOE TYPE.*No. " Rings *6*Diar. of Thrust Shafts at bottom of Collars *8½"*No. of Collars *6*" " Forward Coupling *8½"*At Aft Coupling *8½"*Diar. of Intermediate Shafting by Rule *7.8* Actual *8¼"* No. of Lengths *ONE*No. of Bolts, each Coupling *6* Diar. at Mid Length *2"* Diar. of Pitch Circle *12½"**8¾" EFFECTIVE DIA.*Diar. of Propeller Shafts by Rule *8.75* Actual *9¾" CONE* At Couplings *8½" LOOSE COUPLING*Are Propeller Shafts fitted with Continuous Brass Liners? *YES.*Diar. over Liners *9½"* *10¼"* Length of After Bearings *4'-0½"*Of what Material are the After Bearings composed? *LIGNUM VITAE.*Are Means provided for lubricating the After Bearings with Oil? *NO*" " to prevent Sea Water entering the Stern Tubes? *NO*If so, what Type is adopted? *—*

## SKETCH OF CRANK SHAFT.



STAR 8. ENG. LOOKING FOR



No. of Blades each Propeller 4 Fitted or Solid? Solid

Material of Blades PHOSPHOR BRONZE Boss PHOSPHOR BRONZE

Diar. of Propellers  $9'-9''$  Pitch  $10'-9''$  Surface (each  $40$  S. ft.

Coefficient of Displacement of Vessel at  $\frac{1}{2}$  Moulded Depth . 53

Crank Shafts Forged by **FIFE FORGE CO LTD** Material **MS**

" Pins " " " "

" Webs " "

Thrust Shafts	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
---------------	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

Intermed., " FIVE FORGE CO LTD. PORTENCOINE " 11

[illegible]

Crank „ Finished by CAMBELL & CALDERWOOD LTD P. HAWTHORNS & CO LTD S.

Thrust      "      "      "      "      "      "

Intermed. „ „

Propeller	"	"
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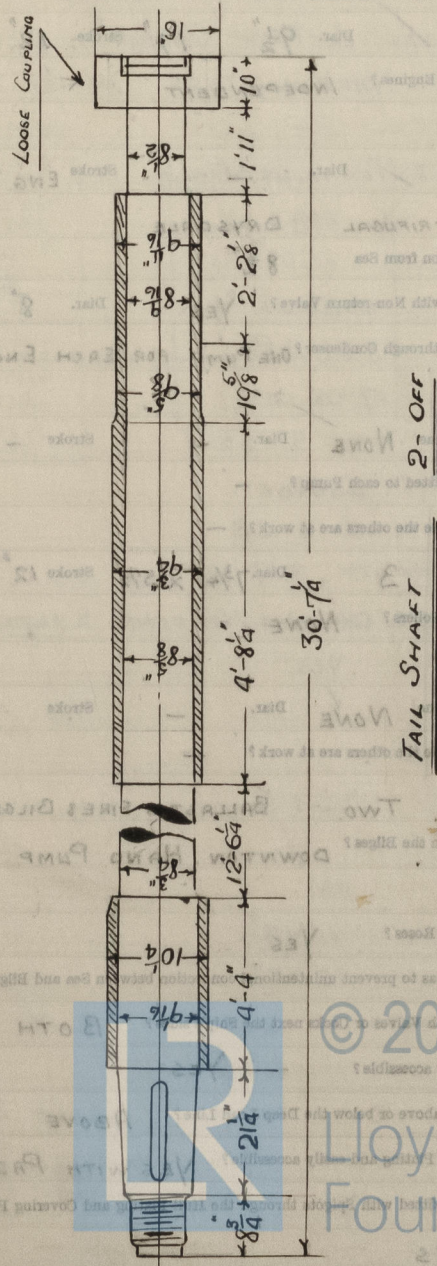
STAMP MARKS ON SHAFTS.

	CRANK SHAFT	INTERSHAFT.	THRUST.	PROPELLER
P.	962. JHM L.R. 27.9.18.	784 R.S. B.C. 4.11.24	493. L.R. FRW 20.12.18	4597 R.S. 23.12.24.
S.	4695 FRW. L.R.	264. 953. F.H.	4684. L.R. CM. F.H. 21.2.19.	

## FINAL MARKS

B.C.  
NO 9276  
R.L.G.  
9-2-25

SKETCH OF PROPELLER SHAFT.





## PUMPS, ETC.

No. of Air Pumps

2

Diar.

9 1/2"

Stroke

17"

Worked by Main or Independent Engines?

INDEPENDENT

No. of Circulating Pumps

2

Diar.

—

Stroke

ENG. 5 1/2" x 5"

Type of

"

CENTRIFUGAL

DRYSDALE

Diar. of

"

Suction from Sea

8 1/2"

Has each Pump a Bilge Suction with Non-return Valve?

YES

Diar.

8"

What other Pumps can circulate through Condenser?

ONE PUMP FOR EACH ENGINE

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.

7 3/4" x 5 1/2"

Stroke

12"

What other Pumps can feed the Boilers?

NONE

No. of Bilge Pumps on Main Engine

NONE

Diar.

—

Stroke

—

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

—

No. of Independent Bilge Pumps

TWO

BALLAST &amp; FIRE &amp; BILGE PUMPS.

What other Pumps can draw from the Bilges?

DOWNTON HAND 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?

BOTH

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?

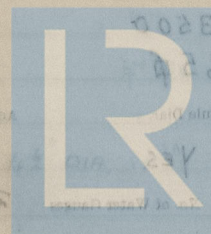
YES WITH PADS

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

on the Outside?

YES

## BOILERS

Boilers Ex 222 CHAMPS  
The Yarrow Type WATER TUBENo. 200  
AC TEST  
30/10/12  
30/10/12  
30/10/12No. 200  
AC TEST  
30/10/12  
30/10/12  
30/10/12No. 200  
AC TEST  
30/10/12  
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## BOILERS.

Works No. **BOILERS EX TSS "CHEAM"**

No. of Boilers **2** Type **YARROW TYPE WATER TUBE.**

Single or Double-ended **—**

No. of Furnaces in each **2 EXTERNALLY FIRED.**

Type of Furnaces **—**

Date when Plan approved **—**

Approved Working Pressure **200/lbs**

Hydraulic Test Pressure **350/lbs**

Date of Hydraulic Test **17-4-25**

" when Safety Valves set **15-5-25**

Pressure at which Valves were set **200/lbs**

Date of Accumulation Test **15-5-25**

Maximum Pressure under Accumulation Test **217/lbs.**

System of Draught **FORCED DRAUGHT HOWDENS SYSTEM**

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

Makers of Plates **—**

" Stay Bars **—**

" Rivets **—**

" Furnaces **—**

Greatest Internal Diam. of Boilers **4'-2"**

" " Length " **10'-11"**

Square Feet of Heating Surface each Boiler **3500**

" " Grate " **65**

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

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

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

" Test Cocks **—** " Salinometer Cocks **—**

## FIRST TEST

AFT  
BOILER

N<sup>o</sup> 2608  
B.C. TEST  
353/lbs  
20.12.18  
H.N.

FORP  
BOILER.

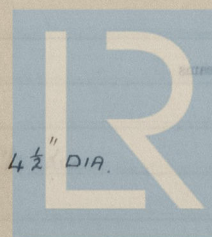
N<sup>o</sup> 2605  
B.C. TEST  
393/lbs  
12.12.18  
J.M.S.

## SECOND TEST.

B.C. TEST  
N<sup>o</sup> 4909.  
T.P. 350/lbs  
W.P. 200/lbs

R.L.G.  
17.4.25.

WASTE STEAM 4 1/2" DIA.



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Are the Water Gauges fitted direct to the <sup>DRUM</sup> ~~Boiler~~ Shells or mounted on Pillars? <sup>DRUM</sup>

Are the Water Gauge Pillars fitted direct to the ~~Boiler~~ Shells or connected by Pipes? <sup>DRUM</sup> DIRECT.

Are these Pipes connected to Boilers by Cocks or Valves?

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

No. of Strakes of Shell Plating in each Boiler

Plates in each Strake

Thickness of Shell Plates Approved

" " in Boilers

Are the Rivets Iron or Steel?

Are the Longitudinal Seams Butt or Lap Joints?

Are the Butt Straps Single or Double?

Are the Double Butt Straps of equal width?

Thickness of outside Butt Straps

" inside "

Are Longitudinal Seams Hand or Machine Riveted?

Are they Single, Double, or Treble Riveted?

No. of Rivets in a Pitch

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Front End Circumferential Seams

Are these Seams Hand or Machine riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Back End Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

Size of Manholes in Shell

Dimensions of Compensating Rings

VALVES

NO. 2002  
B.C. TEST  
20.12.18  
H.M.

NO. 2002  
B.C. TEST  
20.12.18  
H.M.

Boiler

Boiler

Thickness of End Plates in Steam Space Approved

" " " " in Boilers

Pitch of Steam Space Straps

Diar. " " " " Approved Threads per Inch

" " " " in Boilers

Material of " " "

How are Straps Secured?

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " " "

" " Doubling Straps " " "

Thickness of Middle Back End Plates Approved

" " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Straps at

Diar. of Straps Approved Threads per Inch

" " " " in Boilers

Material of " " "

Are Straps fitted with Nuts outside?

Thickness of Back End Plates at Bottom Approved

" " " " in Boilers

Pitch of Straps at Wide Spaces between Fireboxes

Thickness of Doublings in

Thickness of Front End Plates at Bottom Approved

" " " " in Boilers

No. of Doublings in Wide Spaces between Fireboxes



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Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " " Approved Threads per Inch

" " " " " in Boilers

Material of " " "

How are Stays Secured?

Diar. and Thickness of Loose Washers on End Plates

" " " Riveted " " "

Width " " Doubling Strips

Thickness of Middle Back End Plates Approved

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at " " " "

Diar. of Stays Approved Threads per Inch

" " " in Boilers

Material "

Are Stays fitted with Nuts outside?

Thickness of Back End Plates at Bottom Approved

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

Threads per Inch

Diagrams of Stays Approved

" " " in Boilers

Materials

Thickness of Front Tube Plates Approved

" " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " "

" " " Stay Tubes at " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back Tube Plates Approved

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain

Thickness of Stay Tubes

" Plain

External Diam. of Tubes

Materials

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diam. of Furnaces

Length between Tube Plates

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Diar. of Stays Approved Threads per Inch

" " in Boilers

Material " " " "

Thick. of " " " " " " Threads per Inch

Thickness of Front Tube Plates Approved

" " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End ?

Thickness of Back Tube Plates Approved

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain "

Thickness of Stay Tubes Threads per Inch

" Plain "

External Diar. of Tubes

Material " " " "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diar. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of " " " Tops Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Tops

Diar. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " " " "

Thick. of " " " " " " Threads per Inch

Thickness of Combustion Chamber Plates Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Heads

Diar. " " " Approved Threads per Inch

" " " in Boilers

Material " " " "

Thick. of " " " " " " Threads per Inch

Thickness of Combustion Chamber Heads Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Heads

Diar. " " " Approved Threads per Inch

" " " in Boilers

Material " " " "

Thick. of " " " " " " Threads per Inch

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

Thickness of Combustion Chamber Bottoms

" " " " " " " "

No. of Girders over each Wing Chamber

" " " " " " " "

Length and Thickness of Girders

Material of Girders

No. of Stays in each

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Diar. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " Centre "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

# VERTICAL DONKEY BOILERS

No. of Boilers	Type	Height	Grasshopper Int. Diam.	Height of Boiler Crown above Fire Grate	Are Boiler Crowns Flat or Dished?	Internal Radius of Dished Ends	Description of Rooms in Boiler Crown	Diam. of River Holes	Width of Overlap	Height of Firebox Crown above Fire Grate	Are Firebox Crowns Flat or Dished?	External Radius of Dished Crowns	Thickness of Plates	No. of Crown Stays	Diam.	Material	External Diam. of Firebox at Top	Bottom	Thickness	No. of Water Tubes	Diam. Diam.	Material of Water Tubes	Size of Manhole in End	Dimensions of Connecting Ring	Heating Surface each Boiler	Gross Surface
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## 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	Thickness of Plates
No. of Water Tubes	Ext. Diar.	Thickness
Material of Water Tubes	Threads per Inch	
Size of Manhole in Shell		
Dimensions of Compensating Ring		
Heating Surface, each Boiler	Grate Surface	

## SUPERHEATERS.

Description of Superheaters	
Where situated?	
Which Boilers are connected to Superheaters?	
Can Superheaters be shut off while Boilers are working?	
No. of Safety Valves on each Superheater	Diar.
Are " " fitted with Easing Gear?	
Date of Hydraulic Test	Test Pressure
Date when Safety Valves set	Pressure on Valves

## MAIN STEAM PIPES

No. of Pipes	2	2
Material	STEEL	
Joined, Welded or Seamed	Welded	
Internal Diar.	2	2
Thickness	1 1/4	1 1/4
How are Flanges secured?	SCREWED & EXPANDED	
Date of Hydraulic Test	22-4-22	22-4-22
Test Pressure	600 lbs	600 lbs
Material of Stewart & Lloyd's	MADE BY MURDOCH MILLER	
No. of Pipes		
Material		
Joined, Welded or Seamed		
Internal Diar.		
Thickness		
How are Flanges secured?		
Date of Hydraulic Test		
Test Pressure		



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No. of Lengths	5	2
Material	STEEL	do
Brazed, Welded or Seamless	WELDED	do
Internal Diam.	5"	4 1/2"
Thickness	1/4"	1/4"
How are Flanges secured ?	SCREWED	EXPANDED
Date of Hydraulic Test	25-4-25	25-4-25
Test Pressure	600 lbs	600 lbs

MATERIAL BY STEWART & LLOYDS LTD MADE BY MUNRO & MILLER

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. ONE Type COMPACTUM 24 Tons per Day  
 Makers KIRKCALDY & CO  
 Working Pressure 5 lbs Test Pressure 30 lbs 400 lbs  
 Date of Test 24-12-24.  
 Date of Test of Safety Valves under Steam 15-5-25

## FEED WATER HEATERS.

No. 1750 Type PRESSURE SURFACE  
 Makers CAIRD & RAYNOR  
 Working Pressure 200 lbs Test Pressure 50 lbs 480 lbs COMS.  
 Date of Test 26-2-25.

## FEED WATER FILTERS.

No. ONE Type GRAVITATION TWIN Size  
 Makers CARRUTHERS & CO  
 Working Pressure ATOM. Test Pressure -  
 Date of Test 21-5-25.

## LIST OF DONKEY PUMPS.

FIRE & BALLAST G & T. WEIR LTD. N° 9130.  
SACTIONS: STARER, PORTER, TUNNEL, BILGE MAIN, SEA  
DISCHARGE: WATERSERVICE, OVERBOARD, FIRE MAIN, DECK, REFRIG. CIR.  
SANITARY PUMP: G & T WEIR LTD.  
SUCTION: SEA F.W.  
DISCHARGE: EVAP. BRINE, REFRIG CIR, F.W. TANKS, SANITARY TANK.  
FIRE & BILGE: G & T. WEIR. N° 49129.  
SUCTION: SEA BILGE MAIN, INDEP. BILGE.  
DISCHARGE: DISTILLER, OVERBOARD.  
AIR PUMPS (2): G & T WEIR N° 43802 49040.  
STEERING ENGINE: BOW. MCLACHLAN & CO. N° 3579.  
MAIN FEED PUMPS (2): G & T. WEIR. LTD.  
AUX:  
OIL UNIT (2): HOWDEN WALLSEND TODD'S BURNERS.  
FAN ENGINES (2): HOWDEN.



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## SPARE GEAR: 21

No. of Top End Bolts.	2	No. of Bot. End Bolts.	2	No. of Cylinder Cover Slids	6
" Coupling Bolts	6	" Main Bearing Bolts	2	" Valve Chest	6
" Junk Ring Bolts	—	" Feed Pump Valves	1 SET	" Bilge Pump Valves	—
" H.P. Piston Rings	1 SET	" I.P. Piston Rings	1 SET	" L.P. Piston Rings	1 SET
" " Springs	—	" " Springs	—	" " Springs	—
" Safety Valve	2	" Fire Bars	—	" Feed Check Valves	—
" Piston Rods	—	" Connecting Rods	—	" Valve Spindles	—
" Air Pump Rods	1	" Air Pump Buckets	—	" Air Pump Valves	1 SET
" Cir. " 1 & BRASSES	—	" Cir. " —	—	" Cir. " —	—
" Crank Shafts	—	" Crank Pin Bushes	1 PAIR	" Crosshead Bushes	1 PAIR
" Propeller Shafts	1	" Propellers	2 C.	" Propeller Blades	—
" Boiler Tubes	6 LARGE $1\frac{1}{2}$ " 6 SMALL $1\frac{1}{2}$ "	" Condenser Tubes	24	" Condenser Ferrules	—

OTHER ARTICLES OF SPARE GEAR:—

2 HORSE SHOE THRUST COLLARS.

FIRE & BILGE PUMP. 2 SETS RUBBER VALVES & SPRINGSSANITARY & BILGE PUMP. 2 VALVE SPINDLE NECK BUSHES 4 VALVE GUARDS.

2 PISTON " " " " 8 BUCKET RINGS.

No. of Steam Cylinders each 11 inches / No. of Compressors 1 / No. of Combs TWO

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

or Independent WATER CIRCULATING FOR MACHINE ONE

INDEPENDENTLY BY SANITARY OR BILGE PUMP

DRINE CIRCULATING BY INDEPENDENT DUPLEX

WATER PUMP FOR THIS PURPOSE ALTERNATE

System of Refrigeration

CORK SLAB & CEMENT

Insulation

All valves and other regulating valves placed so as to be accessible without entering the insulated

spaces?

Yes

1 - Cold Water 2 1/2

1 - Extra hot 2 1/2

1 - Compressor 2 1/2

1 - 2 1/2

1 - 2 1/2

24 - Copper Pumping Lines

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## REFRIGERATORS.

No. of Machines *One* Capacity of each *4000*  
 Makers *LIGHTFOOT REFRIGERATION CO LTD LONDON*  
 Description *C.F. 582. CARBONIC ACID SYSTEM.*  
*BRINE CIRCULATING IN CHAMBERS.*

No. of Steam Cylinders, each Machine *1* No. of Compressors *1* No. of Cranks *TWO.*

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

or Independently *WATER CIRCULATING FOR MACHINE DONE*

*INDEPENDENTLY BY SANITARY OR BALLAST PUMP.*

*BRINE CIRCULATING BY INDEPENDENT DUPLEX*

*WORTHINGTON PUMP. FOR THIS PURPOSE ALONE.*

System of Refrigeration *BRINE CIRCULATION.*

Insulation *CORK SLAB & CEMENT.*

Are Brine and other 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? *YES*

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

Date of Test under Working Conditions *22.5.25.*

## RESULTS OF TRIALS.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after $2\frac{1}{2}$ hours.
CARGO HOLD FOR <sup>D</sup>	50°	31°	10 hours.	<i>none</i>
CAPACITY OF CARGO HOLD =			3580 cubic feet	
" " CREW STORES =			320	
MAIN DECK	36	30		
LADIES' LUNGE	16	5		
UPPER DECK P.	34	30		
PROTECTOR	40	30		

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

- |  |   |
|--|---|
| 1-CO <sub>2</sub> Piston with rings and 1 nut. | 1-set rings for steam piston valve        |
| 1-extra set CO <sub>2</sub> Piston rings       | 1-charging valve spindle                  |
| 1-Compressor suction valve with br. spring     | 1-Bypass valve spindle                    |
| 1- " delivery " " "                            | 1-set white metal packing for comp. gland |
| 1-CO <sub>2</sub> Regulating valve.            | 1-dz each large & small I.R. rings        |
| 1-set copper jointing rings                    | 5-galls zerolin oil                       |
| 24-Copper Bursting Discs                       |   |



## ELECTRIC LIGHTING.

Installation Fitted by COASTER CONSTRUCTION CO. LTD.

No. and Description of Dynamos TWO - 4 POLE COMPOUND WOUND.

Makers of Dynamos PHOENIX DYNAMO CO. LTD.

Capacity " 12 KW. Amperes, at 114 Volts, 500. Revols. per Min.

Current Alternating or Continuous CONTINUOUS

Single or Double Wire System DOUBLE

Position of Dynamos PORT &amp; STARBOARD SIDES OF ENG. RM. LOWER PLATFORMS.

Main Switch Board UPPER ENG. RM. PLATFORM.

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

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 FORWARD.	53 1	30 500.	13	7/.036			600 $\Omega$
2 MAIN DECK.	36 38 16	30 30 5	8	"			
3 LADIES LOUNGE.	16 38	5 30	10.	"			
4 UPPER DECK P.	34 40	5 30	13	"			
5 " " S.	38	5.	14	"			
6 PROJECTOR.	Not fitted 3	30 SET	8	7/.044			
7 WIRELESS.	16 5	30 30	6	7/.036			
8 NAVIGATION.	39 1	30 200	11	"			
9 ENGINE ROOM.	3	Fans	4	3/.036			
10 FANS.							

Total No. of Lights 358. No. of Motors driving Fans, &amp;c. 3. No. of Heaters 1

Current required for Motors and Heaters 14 Amperes.



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

1. STARBOARD SIDE PASSAGE 2<sup>ND</sup> CLASS CABINS. 10 SWITCHES.
2. PORT " MESS ROOM MAIN DECK. 8 "
3. FORE END PORT SIDE LADIES LOUNGE. 8 "
4. PASSAGE MIDSHIP PORT. 10 "
5. " " STARBOARD. 10 "
7. NAVIGATION STARBOARD SIDE AFT WHEEL HOUSE. 10 "
8. SIDE OF MAIN BOARD. 8 "

Are Out-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. 1/19 S.W.G., Largest, No. 1/16 S.W.G.	How are Conductors in Engine and Boiler Spaces protected? ARMoured & BRAIDED RUN ON TRAY.	" Saloons, State Rooms, &c., " ? LEAD COVERED ON SURFACE.	What special protection is provided in the following cases?—
	YES	"	"	"	YES							
(1) Conductors exposed to Heat or Damp	KEPT AS FAR AS POSSIBLE FROM HEAT ON TRAY.											
(2) " passing through Bunkers or Cargo Spaces	ARMoured & BRAIDED.											
(3) " " Deck Beams or Bulkheads	OK. TUBES. WITGLANDS OR LEAD Bush											

Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables is unimpaired? YES.

Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces? YES.

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface? YES.

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 ALL TESTED ON 250V.

What does the Resistance amount to? 600000 Ohms.

Is the Installation supplied with a Voltmeter? TWO

" " " an Ampere Meter? TWO.

Date of Trial of complete Installation 27-5-25 Duration of Trial 12 hours.

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

Robert K. Greig



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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.

Fees—

## MAIN BOILERS.

	£	s.	d.
H.S.	Sq. ft.	:	:

G.S.	"	:	:
------	---	---	---

## DONKEY BOILERS.

H.S.	Sq. ft.	:	:
------	---------	---	---

G.S.	"	:	:
------	---	---	---

£	:	:
---	---	---

## ENGINES.

L.P.O.	Cub. ft.	:	:
--------	----------	---	---

£	:	:
---	---	---

Testing, &c. ...	:	:
------------------	---	---

£	:	:
---	---	---

Expenses ...	:	:
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Total ...	£	:	:
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It is submitted that this Report be approved,

*Jack Barr* for Chief Surveyor.

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

1<sup>st</sup> July 1925

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.

"CATALA"

as ascertained by me from personal examination

*Robert H. Craig*  
Engineer Surveyor to the British Corporation for the  
Survey and Registry of Shipping.

Fees advised

Fees paid



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