

No. 1969

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. *144* No. in Register Book *3068*

"*LETHBRIDGE*"
S.S. *LETHBRIDGE*

Makers of Engines *Richardsons Westgarth Co. Ltd.*

Works No. *2646*

Makers of Main Boilers *Richardsons Westgarth Co. Ltd.*

Works No. *2646*

Makers of Donkey Boiler

Works No.

MACHINERY.

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Foundation

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 16-7-29 No. in Register Book 28

Received at Head Office 28th August 1924

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

"Yethbridge"

Official No.

Port of Registry

London

Registered Owners

Steamships Ltd. Montreal

Engines Built by

Richardsons Westgarth & Co. Ltd.

at Hartlepool

Main Boilers Built by

Richardsons Westgarth & Co. Ltd.

at Hartlepool

Donkey

Date of Completion

7-24

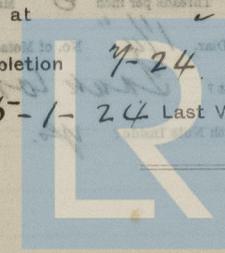
First Visit

5-1-24

Last Visit

25-7-24

Total Visits 54



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RECIPROCATING ENGINES.

Works No. *2646* No. of Sets *1* Description *Triple expansion*
S.S. Berks.

No. of Cylinders each Engine *3* No. of Cranks *3*
Diars of Cylinders *18" 30" 50"* Stroke *36"*
Cubic feet in each L.P. Cylinder *40.9.*
Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr? *yes.*

" " " each Receiver? *yes.*

Type of H.P. Valves,

" 1st L.P. "

" 2nd L.P. "

" L.P. "

" Valve Gear

" Condenser

Diameter of Piston Rods (plain part) *4 3/4"* Screwed part (bottom of thread) *3.536"*

Material "

Diars. of Connecting Rods (smallest part) *5 1/4"* Material *S.S.*

" Crosshead Gudgeons *5 1/2"* Length of Bearing *8"* Material *S.S.*

No. of Crosshead Bolts (each) *2* Diars. over Thrd. *2 3/4"* Threads per inch *6* Material *stee.*

" Crank Pin " *2* " *2 3/4"* " *6* " "

" Main Bearings *6* Lengths *10 1/2"*

" Bolts in each *2* Diars. over Thread *3 1/4"* Threads per inch *6* Material *stee.*

" Holding Down Bolts, each Engine *8 1/4"* Diars. *1 1/4"* No. of Metal Checks *8 1/4"*

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

Darlington Forge Eng'g Co. Ltd.

Piston " "

Crossheads,

Connecting Rods, Finished by

R.W. Co. N. Hood.

Piston " "

Crossheads,

Date of Harbour Trial

16-7-24.

" Trial Trip

26-7-24

Trials run at

Lees Bay.

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

If so, what was the I.H.P.? *1124*

Revs. per min. *110*

Pressure in 1st H.P. Receiver, *182* lbs., 2nd L.P., *65* lbs., L.P., *6.2* lbs., Vacuum, *25* ins.

Speed on Trial

9.5 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.

1000

Revs. per min. *86*

Estimated Speed

9.5 knots.



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TURBINE ENGINES

Works No. _____ Type of Turbines _____
 No. of H.P. Turbines _____ No. of L.P. _____ No. of L.P. _____ No. of Stern _____
 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 _____
 Revols. 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 _____

TURBO-ELECTRIC MACHINERY DESCRIPTION OF INSTALLATION

No. of Turbo-Generating Sets _____ Capacity of each _____
 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 _____
 Revols. per min. of Generators at Full Power _____
 " " " " _____
 " " 1st Reduction Shaft _____
 " " 2nd " _____
 " " Propeller Shaft _____
 Total Shaft Horse Power _____
 Date of Harbour Trial _____
 " Trial Trip _____
 Trials run at _____
 Speed on Trial _____ Propeller Revols. per min. _____ S.H.P. _____



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No. of Blades each Propeller *4* Fitted or Solid? *solid. Fitted.*
 Material of Blades *C. Iron.* Boss *C.P.*
 Diam. of Propellers *12'-9"* Pitch *12'-3"* Surface (each *56* S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth *.832*

Crank Shafts Forged by *Darlington Forge.* Material *I.S.*
 " Pins " " " "
 " Webs " *Jno. Spencer Hous.* " "
 Thrust Shafts " *Darlington Forge.* " "
 Intermed. " " " "
 Propeller " " " "
 Crank " Finished by *R.W.C. Wood*
 Thrust " " " "
 Intermed. " " " "
 Propeller " " " "

STAMP MARKS ON SHAFTS.

Crank Shaft: -

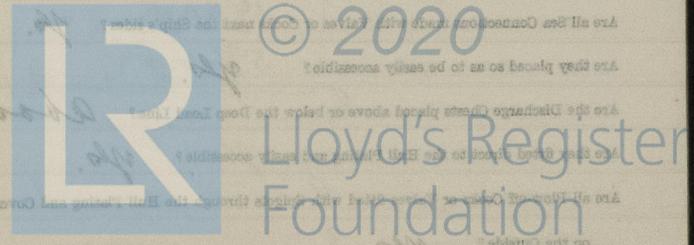
B.C.
 N^o 430
 20-5-24
 J.D.S.

Thrust & Tail Shafts: -

B.C.
 N^o 432
 30-6-24
 J.D.S.

SKETCH OF PROPELLER SHAFT.

18 1/2 No. of Air Pumps
1 Worked by Main or Independent Engines?
 No. of Cranking Pumps
 Type of
 Diam. of Section from Sea
 Has each Pump a High Section with Non-return Valves?
 What other Pumps can circulate through Condensers?
 No. of Feed Pumps on Main Engines
 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
 What other Pumps can feed the Boilers?
 No. of Bilge Pumps on Main Engines
 Can one Pump be overhauled while the others are at work?
 No. of Independent Bilge Pumps
 What other Pumps can draw from the Bilges?
 Are all High Sections fitted with Hoses?
 Are the Valves, etc., so arranged as to prevent accidental connection between Sea and Bilges?
 Are all Sea Connections made with Valves or cocks that can be closed?
 Are they placed so as to be easily accessible?
 Are the Discharge Pipes placed above or below the Deck Level?
 Are they placed so as to be easily accessible?
 Are all Tanks or Cisterns fitted with Traps through the Bulkheads and Covering Plates or Planks on the Outside?



BOILERS.

Works No. *2646.*

No. of Boilers *2* Type *Cylindrical multitubular.*

Single or Double-ended *single.*

No. of Furnaces in each *3*

Type of Furnaces *Slighton.*

Date when Plan approved *8-1-24.*

Approved Working Pressure *185 lbs.*

Hydraulic Test Pressure *328 lbs.*

Date of Hydraulic Test *13-5-24*

„ when Safety Valves set *16-7-24.*

Pressure at which Valves were set *190 lbs.*

Date of Accumulation Test *16-7-24*

Maximum Pressure under Accumulation Test *191 lbs.*

System of Draught *natural.*

Can Boilers be worked separately? *Yes.*

Makers of Plates *D. Calville Sons.*

„ Stay Bars *Geo. Spencer Sons.*

„ Rivets *R. B. & Co. Ltd.*

„ Furnaces *Wells Forge.*

Greatest Internal Diam. of Boilers *13'-3 13/16"*

„ „ Length „ *10'-10 5/16"*

Square Feet of Heating Surface each Boiler *1430 sq*

„ „ Grate „ „ *54.5 sq*

No. of Safety Valves each Boiler *2* Rule Diam. Actual *2 3/4"*

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

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

„ Test Cocks „ *3* „ Salinometer Cocks *1*

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

Are the Water Gauge Tubes fitted direct to the Boiler Shells or connected by Pipes?

Are these Pipes connected to Boilers by Joints 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 Seam Joints 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 Lapped or Machine Riveted?

Are they Single, Double or Triple Riveted?

No. of Rivets in a Pitch

Dist. of Rivets on Main Boilers:—

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams lapped or Machine Riveted?

Dist. of Rivet Joints

No. of Rows of Rivets in End and Circumferential Seams

Are these Seams lapped or Machine Riveted?

Dist. of Rivet Joints

No. of Rows of Rivets in End and Circumferential Seams

Are these Rivets in End and Circumferential Seams

B. C. TEST.
N° 4451
328 lbs.
W.P. 185 lbs.
13-5-24
J. D. S.

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

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes?

Are these Pipes connected to Boilers by Cooks or Valves?

Are Blow-off Cooks 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

Handwritten notes:
 multilobular
 3
 8-1-24
 185 lbs
 1/2
 13-2-24
 2 1/2
 B.O. 1 EST
 No. 4 1/2
 328
 W.P. 188 lbs
 13-2-24
 J.D.
 1/2

Vertical handwritten notes:
 Kaulbach
 2 1/2
 3
 2 1/2

Vertical handwritten notes:
 2 1/2
 3
 2 1/2

Printed text (mirrored from page 16):
 Thickness of Shell Plates in Steam Space Approved
 in Boilers
 Pitch of Steam Space Straps
 Diar. of Straps Approved
 in Boilers
 Material of
 How are Straps Secured?
 Diar. and Thickness of Loose Washers on Hot Pipes
 Riveted
 Width of Doubling Straps
 Thickness of Middle Jack Hot Faces Approved
 in Boilers
 Thickness of Doublings in Wide Space between Fireboxes
 Pitch of Straps at
 Diar. of Straps Approved
 in Boilers
 Material of
 Are Straps fitted with X or outside?
 Thickness of Jack Hot Faces at Bottom Approved
 in Boilers
 Pitch of Straps at Wide Space between Fireboxes
 Thickness of Doublings
 Thickness of Front End Plates at Bottom Approved
 in Boilers
 No. of Circumferential Straps in Front End 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

Same as sp. standards

Threads per Inch

Dist. of Stays Approved

" " " " " in Boilers

Material "

Thickness of Front End Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes in Spaces between Bricks 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

" " " " "

Thickness of Stay Tubes

" " "

Material Dist. of Tubes

" " "

Thickness of Furnace Plates Approved

" " " " " in Boilers

Smallest outside Diar. of Furnaces

Length between Tubes

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Diar. of Stays Approved Threads per Inch

„ „ in Boilers

Material „

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 Diar. of Tubes

Material „

Thickness of Furnace Plates Approved

„ „ „ in Boilers

Smallest outside Diar. of Furnace

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of „ „ Tops Approved

„ „ „ in Boilers

Pitch of Screwed Stays in O.C. Tops

Case as sps "Kaulasps"

Threads per Inch Diar. of Screwed Stays Approved

„ „ „ in Boilers

Material „

Thickness of Combustion Chamber Plates Approved

„ „ „ in Boilers

Pitch of Screwed Stays in O.C. Tops

Threads per Inch „ „ Approved

„ „ „ in Boilers

Material „

Thickness of Combustion Chamber Plates Approved

„ „ „ in Boilers

Pitch of Screwed Stays in O.C. Tops

Threads per Inch „ „ Approved

„ „ „ in Boilers

Material „

Are all Screwed Stays fitted with Nuts at O.C.

Thickness of Combustion Chamber Plates Approved

No. of Girders over each Fire Channel

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Diam. 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

Diam. " " Approved

Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Diam. " " 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

Change as per "Rambrooks"

VERTICAL DONKEY BOILERS

No. of Tubes	Type
Distance bet. Boilers	Height
Height of Boiler Crown above Fire Gate	Are Boiler Crowns Flat or Dished?
Internal Radius of Dished Boilers	Thickness of Plates
Description of Seams in Boiler Crowns	Width of Overlap
Diam. of Live Hoies	Thickness of Plates
Height of Firebox Crown above Fire Gate	Are Firebox Crowns Flat or Dished?
Are Firebox Crowns Flat or Dished?	Internal Radius of Dished Crowns
No. of Crown Stays	Diam.
External Diam. of Firebox at Top	Thickness of Plates
No. of Water Tubes	External Diam.
Maintain of Water Tubes	Thickness
Size of Manholes in Shell	No. of Water Tubes
Dimensions of Compensating Ring	Maintain of Water Tubes
Heating Surface, each Boiler	Size of Manholes in Shell
Grate Surface	Dimensions of Compensating Ring
Description of Superheaters	Heating Surface, each Boiler
When elevated?	Grate Surface
Which Boilers are connected to the main line?	Description of Superheaters
Can superheaters be shut off while boiler are working?	When elevated?
No. of Safety Valves on each superheater	Which Boilers are connected to the main line?
Are they loaded with liquid back	Can superheaters be shut off while boiler are working?
State of Inspection Test	No. of Safety Valves on each superheater
Pressure on Plates	Are they loaded with liquid back



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MAIN STEAM PIPES.

No. of Lengths	2
Material	Copper.
Brazed, Welded or Seamless	S. D.
Internal Diar.	4 1/2"
Thickness	4 W.S.
How are Flanges secured?	braced.
Date of Hydraulic Test	14-7-24
Test Pressure	400 lbs.

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diar.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diar.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

Ballast pump. 9x10x10" Heavy
 General. 8x5x8" Thin
 Sailing. 4x2x5"

FEED WATER HEATERS

No.	1
Type	Vertical
Material	Cast Iron
Working Pressure	180 lbs.
Date of Test	22-8-24
Test Pressure	420

FEED WATER FILTERS

No.	1
Type	Vertical
Material	Cast Iron
Working Pressure	180 lbs.
Date of Test	22-8-24
Test Pressure	420



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EVAPORATORS.

No.	Type	Makers	Working Pressure	Test Pressure	Date of Test	Tons per Day

Date of Test of Safety Valves under Steam

FEED WATER HEATERS.

No.	Type	Makers	Working Pressure	Test Pressure	Date of Test
1	Surface	R.W. Ho. & Hoal.	185 lbs.	450	23-6-24

FEED WATER FILTERS.

No.	Type	Makers	Working Pressure	Test Pressure	Date of Test	Size
1	Cascade	R.W. Ho. & Hoal.				Hot.

LIST OF DONKEY PUMPS.

No.	Type	Makers	Working Pressure	Test Pressure	Date of Test	Size
	Ballast pump	General				9" x 10" x 10"
	"	"				8" x 5" x 8"
	Sanitary	"				4" x 2 3/4" x 5"

Henry Watson
Thos. Lamont.



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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

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.
Engine Room	18.0	18.5	458	0.5
Forward	20.0	20.5	458	0.5
Midships	20.0	20.5	458	0.5
Aft	20.0	20.5	458	0.5
Upper Deck	20.0	20.5	458	0.5
Lower Deck	20.0	20.5	458	0.5
Hold	20.0	20.5	458	0.5
Galley	20.0	20.5	458	0.5
Stowage	20.0	20.5	458	0.5
Water Tank	20.0	20.5	458	0.5
Oil Tank	20.0	20.5	458	0.5
Coal Bunker	20.0	20.5	458	0.5
Boiler Room	20.0	20.5	458	0.5
Funnel	20.0	20.5	458	0.5
Superheater	20.0	20.5	458	0.5
Condenser	20.0	20.5	458	0.5
Refrigerator	20.0	20.5	458	0.5
Compressor	20.0	20.5	458	0.5
Evaporator	20.0	20.5	458	0.5
Receiver	20.0	20.5	458	0.5
Expansion Valve	20.0	20.5	458	0.5
Capillary Tube	20.0	20.5	458	0.5
Pressure Gauge	20.0	20.5	458	0.5
Temperature Gauge	20.0	20.5	458	0.5
Ammeter	20.0	20.5	458	0.5
Voltsmeter	20.0	20.5	458	0.5
Wattmeter	20.0	20.5	458	0.5
Flowmeter	20.0	20.5	458	0.5
Manometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
Barometer	20.0	20.5	458	0.5
Hygrometer	20.0	20.5	458	0.5
Thermometer	20.0	20.5	458	0.5
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Barometer	20.0	20.5		

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

Installation fitted by James G. Co. Ltd.
No. and Description of Dynamos
Makers of Dynamos
Capacity
Current Alternating or Continuous
Single or Double Wire System
Position of Dynamos
Main Switch Board
No. of Circuits to which Switches are provided on Main Switch Board
Particulars of these Circuits:-

Current	Number of Lines	Number of Wires	Current Rating	Size of Conductors	Material of Insulation	Material of Connections	Material of Switches
	3	6	200 A	1/2"	Asbestos	Asbestos	Asbestos
	1	2	40 A	1/4"	Asbestos	Asbestos	Asbestos

Are Out-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. *3/029* S.W.G., Largest, No. *19/083* S.W.G.

How are Conductors in Engine and Boiler Spaces protected? *Run in heavy gauge conduit.*

" Saloons, State Rooms, &c., " ? *V. I. R. lead covered*

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp *Heavy gauge tubing.*

(2) " " passing through Bunkers or Cargo Spaces *Asbestos*

(3) " " Deck Beams or Bulkheads *Asbestos*

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.*

What does the Resistance amount to? *5 megohms.* Ohms.

Is the Installation supplied with a Voltmeter? *yes.*

" " " an Ampere Meter? *yes.*

Date of Trial of complete Installation *25-3-24* Duration of Trial *6 hours.*

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

It is estimated that the Record is correct.

The latests need in the construction of Engines and Boilers as far as could be seen, and

Approved by the Committee for

The Workable throughout the night's attention and by the

" " " "

The above correctly shows the construction of the

as recorded by the

Engineer in charge to the British Corporation for the

Survey and Rating of Shipping



GENERAL CONSTRUCTION.

Have the Machinery and Boilers been constructed in accordance with the requirements of the Rules and the

Approved Plans? *y/s.*

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? *y/s.*

Is the Workmanship throughout thoroughly satisfactory? *y/s.*

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

"LETHBRIDGE"

as ascertained by ^{me}me from personal examination

J. Stephenson
 Engineer Surveyor to the British Corporation for the
 Survey and Registry of Shipping.

Fees—

MAIN BOILERS.

H.S. 3460 Sq. ft.

G.S. 115 "

DONKEY BOILERS.

H.S. ✓ Sq. ft.

G.S. ✓ "

ENGINES.

L.P.C. 40.9 Cub. ft.

Testing, &c.

Expenses

Total ...

It is submitted that this Report be approved.

J. G. King
 Chief Surveyor.

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

8th October 1904.

Fees advised

Fees paid



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Lloyd's Register
 Foundation
 Secretary.

GENERAL CONSTRUCTION

Reason

MAIN BOLLARD

H.S.

3460

Ed. It.

O.S.

112

DOMKEY BOLLARD

H.S.

Ed. It.

O.S.

Examined

L.P.C.

40.9

Cap. It.

Testing Co.

Expenses

Total

It is certified that this Report is approved

[Handwritten signature]

has been read and found to be correct and true and that the same is in accordance with the provisions of the Act

[Handwritten signature]

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

LEITHBRIDGE

Fees paid

Fees paid

[Large handwritten signature]

It is certified that this Report is approved

has been read and found to be correct and true and that the same is in accordance with the provisions of the Act



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