

No. 1641

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 1481 No. in Register Book 2674

EMPIRE TALE

"  
S.S. L O N D O N"

Makers of Engines Hawthornes & Co. Ltd.

Works No. 183.

Makers of Main Boilers Dunsmuir & Jackson.

Works No. B137.

Makers of Donkey Boiler -

Works No. -

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
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Report No. 1481 No. in Register Book 2674

Received at Head Office 14<sup>th</sup> March 1922

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

Official No.

Port of Registry

DUNDEE.

Registered Owners

The Dundee Perth & London Shipping Co. Ltd.

Engines Built by

HAWTHORN & CO. LTD.

at

LEITH.

Main Boilers Built by

DUNSMuir & JACKSON.

at

GLASGOW.

Donkey

at

Date of Completion

18-5-21

First Visit 5-3-20

Last Visit 18-5-21

Total Visits

54

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## RECIPROCATING ENGINES.

Works No. 183. No. of Sets one Description Triple Expansion

Surface Condensing

No. of Cylinders each Engine one No. of Cranks Three

Diams. of Cylinders 20" 33" 53" Stroke 39.

Cubic feet in each L.P. Cylinder 49.5.

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 I.P. "

Andrews &amp; Cameron Balanced Slide Valve

" 2nd I.P. "

" L.P. "

Double Ported Slide Valve

" Valve Gear

Stephenson's Link Motion

" Condenser

Surface (Built) Cooling Surface 1600 sq. ft.

Diameter of Piston Rods (plain part) 5 1/4" Screwed part (bottom of thread) 3.93"

Material " Mild Steel

Diam. of Connecting Rods (smallest part) 5"

Material Mild Steel

" Crosshead Gudgeons 5 1/2" Length of Bearing 6" Material " "

No. of Crosshead Bolts (each) 4 Diam. over Thrd. 2 1/4" Thrds. per inch 6 Material Mild Steel

" Crank Pin " " 2 " 3 " 6 " " "

" Main Bearings 6 Lengths 11 1/2"

" Bolts in each 2 Diam. over Thread 2 1/4" Threads per inch 6 Material steel

" Holding Down Bolts, each Engine 84 Diam. 1 3/8" No. of Metal Chocks 84

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 Messrs Cammell Laird &amp; Co. Ltd.

Piston " " Messrs the Glasgow Iron &amp; Steel Co. Ltd.

Crossheads, " do. do. do.

Connecting Rods, Finished by Hawthorn &amp; Co. Ltd.

Piston " " ditto

Crossheads, " do.

Date of Harbour Trial 17/5/21

" Trial Trip 18/5/21

Trials run at Firth of Forth.

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

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

1480

Revs. per min. 89.

Pressure in 1st I.P. Receiver, 68 lbs., 2nd I.P., — lbs., L.P., 14 lbs., Vacuum, 24 ins.

Speed on Trial 12.5 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. 1500.

Revs. per min. 90.

Estimated Speed 13 knots



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## TURBINE ENGINES.

Works No. — Type of Turbines —  
 No. of H.P. Turbines — No. of I.P. — No. of L.P. — No. of Astern —

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

Is Single or Double Reduction Gear employed? —

Revs. per min. of H.P. Turbines at Full Power —

" " 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 —

Turbine Spindles forged by —

" Wheels forged or cast by —

Reduction Gear Shafts forged by —

" Wheels forged or cast by —

DESCRIPTION OF INSTALLATION.



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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 —

Revs. per min. of Generators at Full Power —

„ „ Motors „ —

„ „ Propellers „ —

Total Shaft Horse Power „ —

Date of Harbour Trial —

„ Trial Trip —

Trials run at —

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 —



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There are three types of...

## Local's District

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## SHAFTING.

Are the Crank Shafts Built or Solid?

*Built.*

No. of Lengths in each

2

Angle of Cranks

120°

Diar. by Rule

10.43"

Actual

10 3/4"

In Way of Webs

11 1/4"

" of Crank Pins

10 3/4"

Length between Webs

12 1/4"

Greatest Width of Crank Webs

20 1/2"

Thickness

7"

Least

19 3/4"

7"

Diar. of Keys in Crank Webs

13/4"

Length

5 1/2"

" Dowels in Crank Pins

1 1/2"

Length

4"

Screwed or Plain

PLAIN.

No. of Bolts each Coupling

6

Diar. at Mid Length

2 1/16"

Diar. of Pitch Circle

16 1/2"

Greatest Distance from Edge of Main Bearing to Crank Web

3/8"

Type of Thrust Blocks

*Michels. Patent*

No. " Rings

*single collar with special rings.*

Diar. of Thrust Shafts at bottom of Collars

10 3/4"

No. of Collars

1

" " Forward Coupling

10 3/4"

At Aft Coupling

10 3/4"

Diar. of Intermediate Shafting by Rule

9.37"

Actual

10 1/4"

No. of Lengths

3

No. of Bolts, each Coupling

6

Diar. at Mid Length

2 1/16"

Diar. of Pitch Circle

16 1/2"

Diar. of Propeller Shafts by Rule

10.93"

Actual

11 1/4"

At Couplings

10 3/4"

Are Propeller Shafts fitted with Continuous Brass Liners?

*Yes.*

Diar. over Liners

12 5/8" AFT

12 3/4" FOR

Length of After Bearings

4'-0"

Of what Material are the After Bearings composed?

*Brass bush lined with Lignum Vitae*

Are Means provided for lubricating the After Bearings with Oil?

*No.*

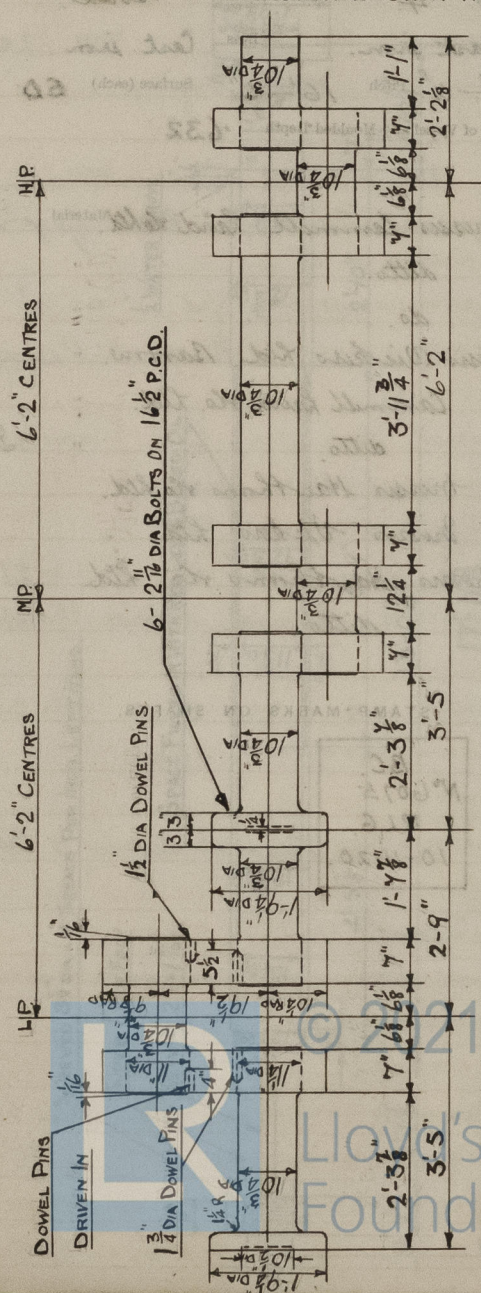
" " to prevent Sea Water entering the Stern Tubes?

*No.*

If so, what Type is adopted?

—

## SKETCH OF CRANK SHAFT.





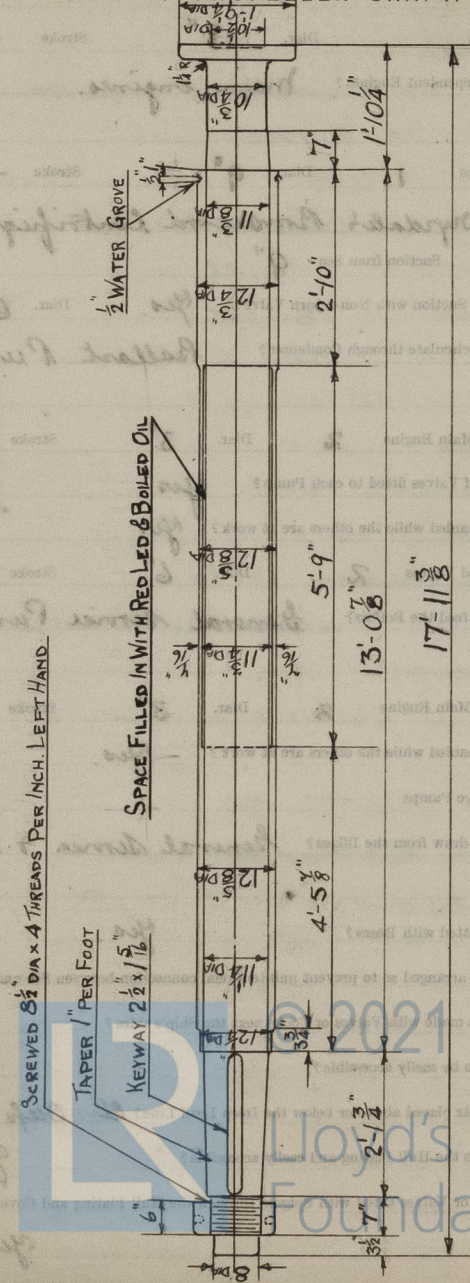
No. of Blades each Propeller *4* Fitted or Solid? *Solid*  
 Material of Blades *Cast iron.* Boss *Cast iron.*  
 Diam. of Propellers *13'-6"* Pitch *16'-6"* Surface (each) *60* S. ft.  
 Coefficient of Displacement of Vessel at  $\frac{1}{2}$  Moulded Depth *.632*

Crank Shafts Forged by *Messrs Cammell Laird & Co Ltd.* Material *Steel*  
 „ Pins „ *ditto.* „ *„*  
 „ Webs „ *do.* „ *„*  
 Thrust Shafts „ *Messrs Vickers Ltd. Barrow.* „ *„*  
 Intermed. „ „ *„ Cammell Laird & Co. Ltd.* „ *„*  
 Propeller „ „ *„ ditto.* „ *Iron.*  
 Crank „ Finished by *Messrs Hawthorns & Co Ltd.*  
 Thrust „ „ *Messrs Vickers Ltd.*  
 Intermed. „ „ *Messrs Hawthorns & Co. Ltd.*  
 Propeller „ „ *ditto.*

## STAMP MARKS ON SHAFTS.

BC.  
 N° 6075  
 R.L.G.  
 10-11-20.

## SKETCH OF PROPELLER SHAFT.





## PUMPS, ETC.

No. of Air Pumps 1 Diar. 18" Stroke 20"

Worked by Main or Independent Engines? *Main engines.*

No. of Circulating Pumps 1 Diar. 9" Stroke —

Type of " *Drysdale's Boudard Centrifugal Pump.*

Diar. of " *Suction from Sea 9"*

Has each Pump a Bilge Suction with Non-return Valve? *Yes.* Diar. 6"

What other Pumps can circulate through Condenser? *Ballast Pump.*

No. of Feed Pumps on Main Engine 2 Diar. 3" 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 2 Diar. 6" Stroke 21"

What other Pumps can feed the Boilers? *General Service Pump.*

No. of Bilge Pumps on Main Engine 2 Diar. 3" Stroke 20"

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

No. of Independent Bilge Pumps —

What other Pumps can draw from the Bilges? *General Service & Ballast Pumps.*

Are all Bilge Suctions fitted with Roses? *Yes.*

Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges? *Yes.*

Are all Sea Connections made with Valves or Cocks next the Ship's sides? *Yes.*

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

Are the Discharge Chests placed above or below the Deep Load Line? *At Deep Load Line.*

Are they fitted direct to the Hull Plating and easily accessible? *Yes.*

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

on the Outside? *Yes.*

## BOILERS

Works No. *B 137*

No. of Boilers *2*

Single or Double ended *SINGLE*

No. of Furnaces in each *2*

Type of Furnace *Deighton*

Date when this approved *10-4-50*

Approved Working Pressure *180 lbs*

Hydraulic Test Pressure *250*

Date of Hydraulic Test *23-XI-50*

When being Yiverson *16-V-51*

Pressure at which Yiverson was *182 lbs*

Date of Commission Test *12-V-51*

Maximum Pressure under Commission Test *182 lbs*

System of Draft *NATURAL*

Can Boilers be worked separately? *Yes.*

Names of Plates *D. Colville & Sons Ltd*

Boiler No. *20*

Boiler No. *20*

Boiler No. *20*

Boiler No. *20*

Boiler No. *20*

Boiler No. *20*

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Boiler No. *20*

Boiler No. *20*

Boiler No. *20*

Boiler No. *20*

Boiler No. *20*

Boiler No. *20*



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## BOILERS.

Works No. **B 137.**

No. of Boilers **2** Type **MULTITUBULAR CYLINDRICAL SCOTCH**

Single or Double-ended **SINGLE.**

No. of Furnaces in each **3** **OIL or COAL.**

Type of Furnaces **DEIGHTON.**

Date when Plan approved **10-4-20.**

Approved Working Pressure **180 LBS.**

Hydraulic Test Pressure **320 "**

Date of Hydraulic Test **28-XII-20**

" when Safety Valves set **16-V-21.**

Pressure at which Valves were set **185 lbs.**

Date of Accumulation Test **16-V-21**

Maximum Pressure under Accumulation Test **188 lbs.**

System of Draught **NATURAL.**

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

Makers of Plates **D. COLVILLE & SONS LTD.**

" Stay Bars **D<sup>o</sup>.**

" Rivets **NORTH WEST RIVET BOLT & NUT CO** **AIRDRIE.**

" Furnaces **DEIGHTON F. & T. CO LTD.**

Greatest Internal Diam. of Boilers **14'-10"**

" " Length " **12'-8"**

Square Feet of Heating Surface each Boiler **2233  $\phi$**

" " Grate " " **60  $\phi$**

No. of Safety Valves each Boiler **1 Double.** **Diar.** **3 1/2"**

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** **1**

BCTEST.  
No 3869  
320 lbs.  
W.F. 180 lbs.  
G.S.M.  
28-12-20.



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

On Pillars

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

Direct to shell

Are these Pipes connected to Boilers by Cocks or Valves?

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

Valves

No. of Strakes of Shell Plating in each Boiler

1

" Plates in each Strake

3

Thickness of Shell Plates Approved

$1\frac{3}{32}$ "

" " in Boilers

$1\frac{1}{32}$ "

Are the Rivets Iron or Steel?

STEEL

Are the Longitudinal Seams Butt or Lap Joints?

BUTT

Are the Butt Straps Single or Double?

DOUBLE

Are the Double Butt Straps of equal width?

YES

Thickness of outside Butt Straps

$1\frac{1}{16}$ "

" inside "

$1\frac{1}{16}$ "

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

$1\frac{2}{32}$ "

Pitch

$8\frac{7}{8}$ "

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?

MACHINE

Diar. of Rivet Holes

$1\frac{3}{8}$ "

Pitch

3.91

No. of Rows of Rivets in Back End Circumferential Seams

2

Are these Seams Hand or Machine Riveted?

MACHINE

Diar. of Rivet Holes

$1\frac{3}{8}$ "

Pitch

3.91"

Size of Manholes in Shell

16" x 12"

Dimensions of Compensating Rings

8" x  $1\frac{1}{4}$ "



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Thickness of End Plates in Steam Space Approved

 $1\frac{7}{32}$ "

" " " " " in Boilers

 $1\frac{7}{32}$ "

Pitch of Steam Space Stays

 $1'-8" \times 1'-8\frac{1}{2}"$  APPROX.Diar. " " " " Approved  $3"$  Threads per Inch 6" " " " " in Boilers  $3"$  " 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

 $\frac{29}{32}$ "

" " " " " in Boilers

 $\frac{29}{32}$ "

Thickness of Doublings in Wide Spaces between Fireboxes

-

Pitch of Stays at

 $9\frac{1}{4}" \times 9\frac{7}{8}"$ Diar. of Stays Approved  $1\frac{3}{4}"$  Threads per Inch 8" " " in Boilers  $1\frac{3}{4}"$  " 8

Material " STEEL

Are Stays fitted with Nuts outside? YES.

Thickness of Back End Plates at Bottom Approved

 $\frac{29}{32}$ "

" " " " " in Boilers

 $\frac{29}{32}$ "

Pitch of Stays at Wide Spaces between Fireboxes

 $9\frac{1}{4}" \times 9\frac{7}{8}"$ 

Thickness of Doublings in

-

Thickness of Front End Plates at Bottom Approved

 $1\frac{1}{16}"$ 

" " " " " in Boilers

 $1\frac{1}{16}"$ 

No. of Longitudinal Stays in Spaces between Furnaces

3



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Diar. of Screwed Stays Approved  $1\frac{3}{4}$ " Threads per Inch 8  
 " " " in Boilers  $1\frac{3}{4}$ " 8  
 Material " " STEEL

Thickness of Combustion Chamber Sides Approved  $\frac{23}{32}$ "  
 " " " " in Boilers  $\frac{23}{32}$ "  
 Pitch of Screwed Stays in C.O. Sides  $9\frac{7}{8}" \times 9\frac{1}{4}"$   
 Diar. " " Approved  $1\frac{3}{4}$ " Threads per Inch 8  
 " " " in Boilers  $1\frac{3}{4}$ " 8  
 Material " " STEEL

Thickness of Combustion Chamber Backs Approved  $\frac{23}{32}$ "  
 " " " in Boilers  $\frac{23}{32}$ "  
 Pitch of Screwed Stays in C.O. Backs  $9\frac{1}{2}" \times 9\frac{1}{2}"$   
 Diar. " " Approved  $1\frac{3}{4}"$ ,  $1\frac{1}{2}"$ ,  $2\frac{1}{8}"$  Threads per Inch 8  
 " " " in Boilers  $1\frac{3}{4}"$ ,  $1\frac{1}{2}"$ ,  $2\frac{1}{8}"$  8  
 Material " " STEEL

Are all Screwed Stays fitted with Nuts inside O.O.? YES.

Thickness of Combustion Chamber Bottoms  $\frac{7}{8}"$

No. of Girders over each Wing Chamber 4.

" " " Centre " 4.

Depth and Thickness of Girders  $10" \times 1"$

Material of Girders IRON.

No. of Stays in each 3

No. of Tubes, each Boiler 77 STAY, 182 PLAIN, 259 IN ALL

Size of Lower Manholes  $16" \times 12"$

## VERTICAL DONKEY BOILERS

No. of Boilers  
 Grosses Int. Diar.  
 Height of Boiler Crown above Fire Grate  
 Are Boiler Crowns Flat or Dishd?  
 Internal Radius of Dishd Crown  
 Description of Stays in Boiler Crowns  
 Diar. of River Tubes  
 Pitch  
 Height of River Crown above Fire Grate  
 Are River Crowns Flat or Dishd?  
 External Radius of Dishd Crowns  
 No. of Crown Stays  
 Diar.  
 Material  
 Thickness of Plates  
 External Diar. of River at Top  
 Bottom  
 No. of Water Tubes  
 Int. Diar.  
 Thickness  
 Material of Water Tubes  
 Size of Manhole in Shell  
 Dimensions of Compensating Ring  
 Heating Surface each Boiler  
 Gross Surface

## 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	—
Height of Firebox Crowns above Fire Grate	—	Width of Overlap	—
Are Firebox Crowns Flat or Dished?	—		
External Radius of Dished Crowns	—	Thickness of Plates	—
No. of Crown Stays	—	Diar.	—
External Diar. of Firebox at Top	—	Bottom	—
No. of Water Tubes	—	Ext. Diar.	—
Material of Water Tubes	—	Thickness	—
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	—
Are " " fitted with Easing Gear?	—
Date of Hydraulic Test	—
Date when Safety Valves set	—

## MAIN STEAM PIPES.

No. of Pipes	—	Material	—
Height of Pipes	—	Internal Diar.	—
External Diar.	—	Thickness	—
Internal Radius of Dished Ends	—	How are Flanges secured?	—
Date of Hydraulic Test	—	Test Pressure	—
No. of Pipes	—	Material	—
Height of Pipes	—	Internal Diar.	—
External Diar.	—	Thickness	—
Internal Radius of Dished Ends	—	How are Flanges secured?	—
Date of Hydraulic Test	—	Test Pressure	—



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## MAIN STEAM PIPES.

No. of Lengths	2	2
Material	Copper.	Copper
Brazed, Welded or Seamless	Seamless	Seamless
Internal Diam.	4 1/2"	4 1/2"
Thickness	6 LSWG	6 LSWG
How are Flanges secured?	Brazed.	Brazed.
Date of Hydraulic Test	6-V-21	6-V-21
Test Pressure	360 lbs	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

## FEED WATER HEATERS

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

## FEED WATER FILTERS

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 *Direct contact Low pressure.*  
 Makers *Messrs G. & J. Weir Ltd.*  
 Working Pressure *atm.* Test Pressure — Date of Test *18-5-21.*

## FEED WATER FILTERS.

No. *one* Type *Suction.* Size *100 gallons.*  
 Makers *Messrs Hawthorn & Co Ltd.*  
 Working Pressure *Atmospheric.* Test Pressure — Date of Test *18-5-21.*

## LIST OF DONKEY PUMPS.

PUMP. — MAKERS. — Nº — SIZE. —  
Ballast. *Bawson & Downie. 4699. 7" x 8" x 8"*  
Suctions: — *Special bilge, Eng room bilge, Main bilge, Aft tanks, fore tanks, sea.*  
Discharge: — *Deck fore tanks, aft tanks, main, aux Condensers, Overboard.*  
Fresh Water *Mumford. 3" x 3" x 4"*  
Suction: — *Eng Room tanks.*  
Discharge: — *Boiler through heater.*  
2 Fed. (Ind.) *4 J. Weir's. 6493. 8" x 6" x 21"*  
Suctions. *Tanks, sea, boiler, Condenser, Filter, Heater; Heater, tanks, Filter, Condenser.*  
Discharge *Main feed, Heaters, Aux feed.*  
Circulating *Drysdale 9" Lurgan.*  
bil full transfer *10001 6" x 7" x 12" R Warner & Co.*  
Suctions *Drain tanks, bil main.*  
Discharge *Settling tanks.*  
aux feed *Bawson & Downie No 5356. 8" x 5" x 8".*  
Suctions *Bilge, Condenser, Filter, Ballast, Boilers, sea.*  
Discharge *Overboard, Deck, Sanitary, Boilers, Ash. ejector.*  
Dynamo. *Greenwood Batley No 7615. 1KW13. 100V. 12.5 A. 2000R.*  
Steering engine. *Hastie & Co Ltd. No 2716. McCaggart Scott telemotor.*



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OTHER ARTICLES OF SPARE GEAR:—

2 eccentric studs & nuts

1 set condenser tube packing

6 dozen bolts - nuts & washers assorted.

Sufficient packing to pack glands of main engines

12 mats for bribe combustion stays



Date of Test under Working Conditions

[illegible]

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

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HAWTHORNS & CO LTD

One compound 4 pole

Greenwood & Batley. No 7615.

13 K.W. Amperes, at 100 Volts. 2000 Revols. per Min.

Continuous

Double wire

Engine room lower platform - Star side.

" " " " " "

Yours

Circuit.	Number of Lights.	Candle Power.	Current Required, Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
1. Engine Room.	5.	200	11.6	7/17.	750 $\Omega$		4000 $\Omega$
	9.	30					
	8.	16					
2. Cargo Chusters	48.	16	27.9.	7/16.	1260 $\Omega$ .		3500 $\Omega$
3. Accommodation	4.	200	20.85	3/16.	940 $\Omega$		3500 $\Omega$
	16.	16					
	29.	30					
	12.	30	8.85	3/18.	750 $\Omega$		4000 $\Omega$
	1.	26					
	18.	30					
	3.	16	6.65	7/20.	1000 $\Omega$		4000 $\Omega$
	5.	32.					
4. Navigation	5.	32.	5.8.	7/20.	790 $\Omega$ .		4000 $\Omega$

Current required for Motors and Heaters



Positions of Auxiliary Switch Boards, with No. of Switches on each 1-6 way D.P. board

with 6 switches. Engine room middle grating.  
 one 1-6 way D.P. Board on top grating engine room.  
 one 8 " " " in pass gangway "  
 one 6 " " " in pantry.  
 one 3 " " " crew's quarter's aft.

Are Cut-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 Size?

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. 18 S.W.G., Largest, No. 16. S.W.G.

How are Conductors in Engine and Boiler Spaces protected? Lead covered steel armoured.

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

Lead covered.

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp

(2) " passing through Bunkers or Cargo Spaces

(3) " " Deck Beams or Bulkheads

Lead bushings &  
 WT glands

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?

50000 Ohms.

Is the Installation supplied with a Voltmeter?

Yes.

" " " an Ampere Meter?

Yes.

Date of Trial of complete Installation May 18<sup>th</sup> 1921. Duration of Trial 6 hours.

Robert A. Greig  
 Surveyor.



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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. *yes.*

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.

as ascertained by <sup>us</sup> ~~me~~ from personal examination

"LONDON"

*Robert H. Craig*  
*Geo. Macfarlane*  
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,

*Chief Surveyor.*

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

Fees advised

Fees paid



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*Secretary.*



## GENERAL CONSTRUCTION

Total

H.S.

H.S.

H.S.

L.P.

Testing for

Expenses

Total

It is submitted that this Report be approved.

The above was read and approved by the Committee on the 14th of March 1904.

Approved by the Committee for the Office of M.B.S. on the 14th of March 1904.

LONDON

Done at

This day

*Robert H. Lloyd*  
*John H. Lloyd*

This vessel is constructed for carrying  
 oil fuel in double bottom tanks Nos 1, 2, & 4,  
 and furnaces fitted to change over from coal  
 to oil & vice versa.



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This road is considered for carrying  
 at first in double bottom tanks 1000  
 and 1500 tons fitted to change one for another  
 to suit a new use.



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