

No. 1536

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No.

1414

No. in Register Book

2536

PERGAMON

by

DESTRIAN

S.S.

"Destro" Ex

Makers of Engines

Dunlop Breunel & Co.

Works No.

324

Makers of Main Boilers

J. G. Kincaid & Co.

Works No.

62

Makers of Donkey Boiler

Works No.

MACHINERY.



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015450 - 015460 - 0290



No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

Report No. 1414 No. in Register Book 2536

Received at Head Office

15<sup>th</sup> July 1920

Surveyor's Report on the New Engines, Boilers, and Auxiliary Machinery of the ~~Single Triple~~ ~~Twin Quadruple~~ Screw "Destro".

Official No. 144046 Port of Registry

Hull.

Registered Owners

Ellerman's Wilson Line, Ltd.  
Hull.

Engines Built by

Dunlop Bremner & Co.

at

Port - Glasgow.

Main Boilers Built by

J. G. Kincaid & Co.

at

Greenock.

Donkey " "

at

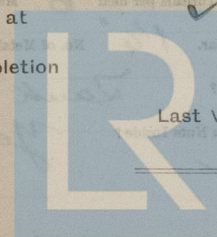
Date of Completion

First Visit

Last Visit

10-6-20

Total Visits



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## RECIPROCATING ENGINES.

Works No. 324

No. of Sets 1

Description

Triple, S-C, 3 Cks.

No. of Cylinders each Engine

3

No. of Cranks

3

Diars. of Cylinders

21", 36"; 62"

Stroke

39"

Cubic feet in each L.P. Cylinder

68.1

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr?

yes.  
yes.

" " " each Receiver?

Type of H.P. Valves,

Piston

" 1st I.P. "

Andrews &amp; Cameron

" 2nd I.P. "

" L.P. "

Double ported slide.

" Valve Gear

Stephenson's link.

" Condenser

Surface.

Cooling Surface 2000 sq. ft.

Diameter of Piston Rods (plain part)

5 1/8"

Screw part (bottom of thread)

4.412"

Material

Iron.

Diar. of Connecting Rods (smallest part)

5 1/8"

Material

I. Steel

" Crosshead Gudgeons

6 1/2"

Length of Bearing

6 1/2"

Material

"

No. of Crosshead Bolts (each)

4

Diar. over Thrd.

2 3/8"

Thrds. per inch

6

Material

Steel.

" Crank Pin "

2

"

3 1/2"

"

6

"

"

" Main Bearings

6

Lengths

13 1/2"

" Bolts in each

2

Diar. over Thread

2 3/4"

Threads per inch

6

Material

Steel

" Holding Down Bolts, each Engine

132

Diar.

1 1/4"

No. of Metal Chocks

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

Dunlop, Bremner &amp; Co.

Piston

"

"

"

Crossheads,

"

"

Connecting Rods, Finished by

"

Piston

"

"

"

Crossheads,

"

"

Date of Harbour Trial

5-6-20.

" Trial Trip

10-6-20.

Trials run at

Firth of Clyde.

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

No; light ship.

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

1262.25

Revs. per min.

82

Pressure in 1st I.P. Receiver,

144 lbs.,

2nd I.P.,

44 lbs.,

L.P.,

4.5 lbs.,

Vacuum 27 1/4 ins.

Speed on Trial

10.95 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.

1350

Revs. per min.

68

Estimated Speed

10 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

"	"	L.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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## TURBINE ENGINES

Serial No. \_\_\_\_\_  
 Type of Turbine \_\_\_\_\_  
 No. of I.P. \_\_\_\_\_  
 No. of A.P. \_\_\_\_\_  
 No. of Axial \_\_\_\_\_

Are the Propeller Shafts driven direct by the Turbine or through Gearing?

Is Single or Double Reduction Gear employed?

Revolve per min. of I.P. Turbine at Full Power

" " " "

" " " "

Is Reduction Gear

" " " "

Propeller Shaft

Total Shaft Horse Power

Rate of Rotation Trial

" " " "

Pressure in lb.

Speed per min.

Turbine Speed per min.

Wheels locked or not by

Reduction Gear Shafts locked by

Wheels locked or not by

DESCRIPTION OF INSTALLATION

## TURBO-ELECTRIC PROPELLING MACHINERY

No. of Turbo-propellers \_\_\_\_\_

Capacity of each \_\_\_\_\_

Type of Turbine employed \_\_\_\_\_

Description of Machinery \_\_\_\_\_

Is direct electric motor?

Is there a degree shaft?

Is degree shaft used to connect

to main or degree shaft?

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

Revolve per min. of Generator at Full Power

" " " "

Propeller

Total Shaft Horse Power

Rate of Rotation Trial



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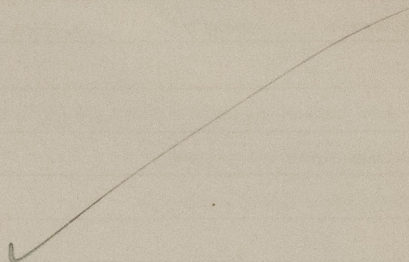


## TURBO-ELECTRIC PROPELLING MACHINERY.

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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## SHAFTING.

Are the Crank Shafts Built or Solid?

*Built*

No. of Lengths in each

*2*

Angle of Cranks

*120°*

Diar. by Rule

*11.59"*

Actual

*12 1/4"*

In Way of Webs

*12 1/4"*

" of Crank Pins

*12 3/8"*

Length between Webs

*13 1/2"*

Greatest Width of Crank Webs

*23 1/2"*

Thickness

*8 3/16"*

Least

"

*19 1/2"*

"

"

Diar. of ~~Keys~~ *Dowels* in Crank Webs*1 1/2"*

Length

*4"**} Secured by 5/8" screwed lock ing pins.*

" Dowels in Crank Pins

*1 1/2"*

Length

*4"*

Screwed or Plain

*Plain*

No. of Bolts each Coupling

*6*

Diar. at Mid Length

*2 7/8"*

Diar. of Pitch Circle

*18"*

Greatest Distance from Edge of Main Bearing to Crank Web

*3/8"*

Type of Thrust Blocks

*Horse shoe*

No. " Rings

*5*

Diar. of Thrust Shafts at bottom of Collars

*12 1/4"*

No. of Collars

*5*

" " Forward Coupling

"

At Aft Coupling

*12 1/4"*

Diar. of Intermediate Shafting by Rule

*11.01"*

Actual

*11 3/8"*

No. of Lengths

*4*

No. of Bolts, each Coupling

*6*

Diar. at Mid Length

*2 7/8"*

Diar. of Pitch Circle

*18"*

Diar. of Propeller Shafts by Rule

*12.93*

Actual

*13 7/8"*

At Couplings

*12 1/4"*

Are Propeller Shafts fitted with Continuous Brass Liners?

*yes.*

Diar. over Liners

*15 1/8"*

Length of After Bearings

*4'-8"*

Of what Material are the After Bearings composed?

*Lignum vitae*

Are Means provided for lubricating the After Bearings with Oil?

*no.*

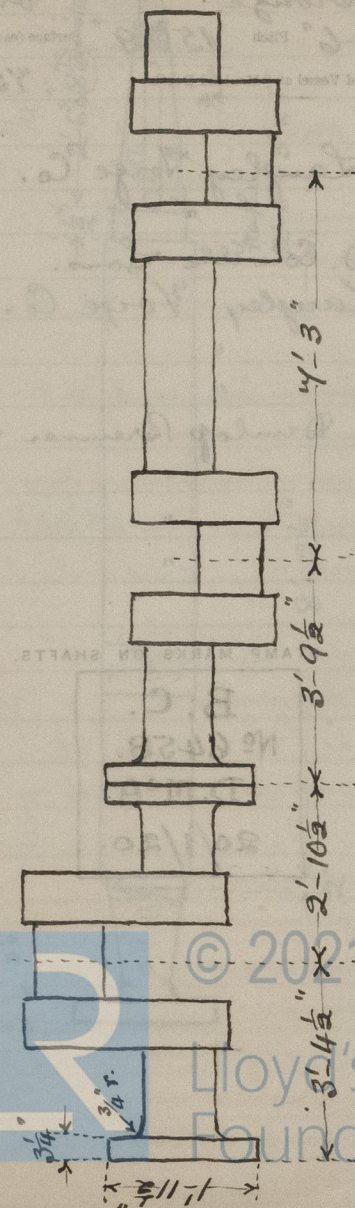
" " to prevent Sea Water entering the Stern Tubes?

*no.*

If so, what Type is adopted?

*✓*

## SKETCH OF CRANK SHAFT.





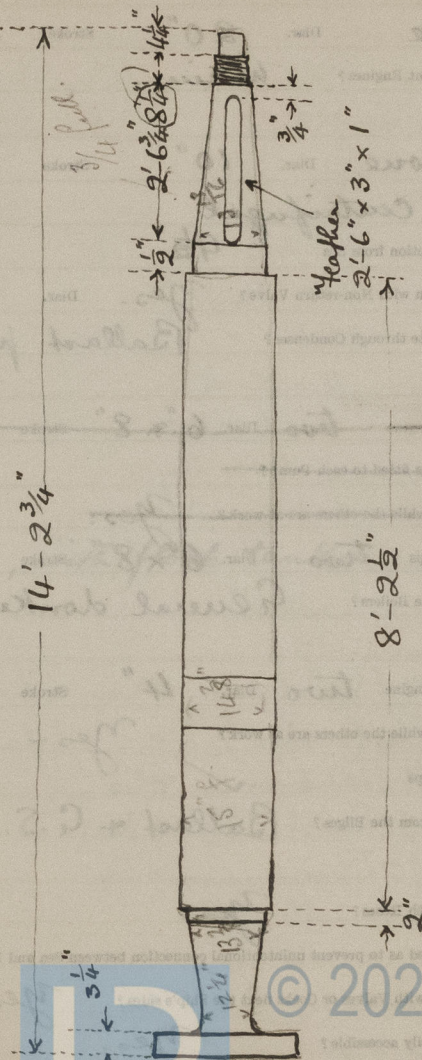
No. of Blades each Propeller 4 Pitted or Solid? Solid  
 Material of Blades Bronze Boss bronze  
 Diam. of Propellers 16'-6" Pitch 15'-9" Surface (each) 82 S. ft.  
 Coefficient of Displacement of Vessel at  $\frac{1}{2}$  Moulded Depth 453

Crank Shafts Forged by Langley Forge Co. Material I.S.  
 „ Pins „ „ „ „  
 „ Webs „ D. Colville Sons. „ „  
 Thrust Shafts „ Langley Forge Co. „ „  
 Intermed. „ „ „ „  
 Propeller „ „ „ „  
 Crank „ Finished by Dunlop Bremner & Co.  
 Thrust „ „ „ „  
 Intermed. „ „ „ „  
 Propeller „ „ „ „

## STAMP MARKS ON SHAFTS.

B. C.  
 No 6458.  
 D. M<sup>c</sup>A.  
 20/1/20.

## SKETCH OF PROPELLER SHAFT.



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## PUMPS, ETC.

No. of Air Pumps *one* Diar. *20"* Stroke *22"*

Worked by Main or Independent Engines? *main.*

No. of Circulating Pumps *one* Diar. *10"* Stroke *✓*

Type of *" Centrifugal*

Diar. of *" Suction from Sea 9½"*

Has each Pump a Bilge Suction with Non-return Valve? *yes.* Diar. *8"*

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

~~No. of Feed Pumps on Main Engine *two* Diar. *6" x 8"* Stroke *21"*~~

~~Are Spring-loaded Relief Valves fitted to each Pump?~~

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

No. of Independent Feed Pumps *two* Diar. *6" x 8"* Stroke *21"*

What other Pumps can feed the Boilers? *General donkey pump.*

No. of Bilge Pumps on Main Engine *two* Diar. *4"* Stroke *22"*

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? *Ballast + G.S.*

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? *Above.*

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.

*Weir's, with float tank.*



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## BOILERS.

Works No. 62

No. of Boilers 2 Type Marine return tube

Single or Double-ended Single

No. of Furnaces in each 4

Type of Furnaces Deighton

Date when Plan approved 21-3-19.

Approved Working Pressure 210 lb./sq"

Hydraulic Test Pressure 365 " Ballast pump

Date of Hydraulic Test 11-5-20.

" when Safety Valves set 4-6-20

Pressure at which Valves were set 216 lb./sq"

Date of Accumulation Test 4-6-20

Maximum Pressure under Accumulation Test 221 lb./sq"

System of Draught Natural.

Can Boilers be worked separately? Yes.

Makers of Plates Wm Beardmore & Co. (Shell)

John Spencer & Sons (wrapper) " (Flange)

" Stay Bars Wm Beardmore & Co.

" Rivets N.W. Rivet, Bolt & Nut Factory.

" Furnaces Wm Beardmore & Co.

Greatest Internal Diam. of Boilers 16'-0"

" " Length " 11'-6"

Square Feet of Heating Surface each Boiler 2611 sq. ft.

" " Grate " " 74.25 sq. ft.

No. of Safety Valves each Boiler Two Diam. 2 3/4"

Are the Safety Valves fitted with Lifting Gear? Yes.

No. of Pressure Gauges, each Boiler One No. of Water Gauges One

" Test Cocks " Three " Salinometer Cocks "

Test no. 3350.



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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 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

Diam. of Rivet Holes

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

No. of Rows of Rivets in Front End Circumferential Seams

Are these Seams Hand or Machine riveted?

Diam. of Rivet Holes

No. of Rows of Rivets in Back End Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

Size of Manholes in Shell

Dimensions of Compensating Rings

on Pillars.

Pipes.  
Cocks.  
Valves.

three

one.  
 $1\frac{14}{32}$ "

"

Steel

Butt

Double

yes.  
 $1\frac{1}{2}$ "

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

Machine.

Treble.

5

$10\frac{1}{2}$ "

Pitch

✓

✓

✓

2

Machine.

$4\cdot34$ "

2

Both.

$4\cdot34$ "

Pitch

$16" \times 12"$

$3'-0\frac{1}{4}" \times 2'-8\frac{1}{4}"$

Thickness of End Plates in Steam Space Approved

" " in Boilers

Pitch of Steam Space Straps

Diam. of Rivets per Inch

" " in Boilers

Material of " "

How are Stays Secured?

Diam. and Thickness of Loose Washers on End Plates

" " Rivets

" " Doubling Straps

Thickness of Middle Back End Plates Approved

" " in Boilers

Thickness of Doubling in Wide Spaces between Fireboxes

Pitch of Stays as

Diam. of Stays Approved

" " in Boilers

Material of " "

Are Stays fitted with nuts outside?

Thickness of Back End Plates at Bottom Approved

" " in Boilers

Pitch of Stays as

Thickness of Doubling in

" " Rivets

" " Doubling Straps

Thickness of Middle Back End Plates Approved

" " in Boilers

No. of Circumferential Straps in Steam Space



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Thickness of End Plates in Steam Space Approved

 $1\frac{5}{16}$ "

" " " " " in Boilers

"

Pitch of Steam Space Stays

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

8

" " " " " in Boilers

"

Material of " " "

Steel

How are Stays Secured?

*Nuts inside & outside.*

Diar. and Thickness of Loose Washers on End Plates

 $10\frac{1}{2}" \times \frac{3}{8}"$ 

" " " Riveted " " "

✓

Width " " Doubling Strips " " "

✓

Thickness of Middle Back End Plates Approved

 $\frac{29}{32}$ "

" " " " " in Boilers

"

Thickness of Doublings in Wide Spaces between Fireboxes

✓

Pitch of Stays at

" " " "

 $1'-2" \times 8\frac{1}{4}"$ 

Diar. of Stays Approved

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

Threads per Inch

11

" " " in Boilers

"

"

"

Material "

Steel.

Are Stays fitted with Nuts outside?

*yes.*

Thickness of Back End Plates at Bottom Approved

 $\frac{29}{32}$ "

" " " " " in Boilers

"

Pitch of Stays at Wide Spaces between Fireboxes

 $1'-3\frac{1}{2}" \times 9"$ 

Thickness of Doublings in " "

✓

Thickness of Front End Plates at Bottom Approved

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

" " " " " in Boilers

"

No. of Longitudinal Stays in Spaces between Furnaces

3 (each.)

Diar. of Stays Approved

" " " " " in Boilers

Material "

Thickness of Front End 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 End Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes in Back End Plates

" " " " " in Boilers

Thickness of Stay Tubes

" " " " " in Boilers

Material

Are Stay Tubes fitted with Nuts outside?

Thickness of Front End Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes 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



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Diar. of Stays Approved

 $2\frac{1}{4}"$ 

Threads per Inch

8

" " in Boilers

Material "

Steel.

Thickness of Front Tube Plates Approved

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

" " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

 $1'-1\frac{1}{8}" \times 9"$ 

Thickness of Doublings in " " "

" Stay Tubes at " " "

 $\frac{5}{16}"$  (top corner  $\frac{7}{16}"$ )

Are Stay Tubes fitted with Nuts at Front End?

No.

Thickness of Back Tube Plates Approved

 $\frac{13}{16}"$ 

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

 $11\frac{1}{4}" \times 9"$ 

" Plain "

 $4\frac{1}{2}" \times 4\frac{1}{2}"$ 

Thickness of Stay Tubes

 $\frac{5}{16}" \times 4\frac{1}{2}"$ 

" Plain "

8 w.g.

External Diar. of Tubes

 $3\frac{1}{4}"$ 

Material "

Lapwelded wrought iron.

Thickness of Furnace Plates Approved

 $\frac{21}{32}"$ 

" " " in Boilers

Smallest outside Diar. of Furnaces

 $3'-5\frac{13}{16}"$ 

Length between Tube Plates

 $4'-6"$ 

Width of Combustion Chambers (Front to Back)

 $3'-2"$  (mean.)

Thickness of " " Tops Approved

 $\frac{11}{16}"$ 

" " " " in Boilers

Pitch of Screwed Stays in C.O. Tops

 $8\frac{1}{2}" \times 8\frac{15}{16}"$ 

Diar. of Stays Approved

Threads per Inch

"

" " in Boilers

"

Material "

Thickness of Front Tube Plates Approved

" " " " in Boilers

Pitch of Stay Tubes in C.O. Stacks

Diar. "

Approved

" " in Boilers

Material "

Thickness of Back Tube Plates Approved

" " " " in Boilers

Pitch of Stay Tubes in C.O. Stacks

Diar. "

Approved

" " in Boilers

Material "

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

Thickness of Combustion Chamber Bottoms

No. of Stays over each Wing Chamber

" " " " " "

Depth and Thickness of Plates

Material of Stays

No. of Stays in each Wing Chamber

No. of Stays in each Wing Chamber

No. of Stays in each Wing Chamber

No. of Stays in each Wing Chamber

No. of Stays in each Wing Chamber



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Diar. of Screwed Stays Approved

 $1\frac{3}{4}"$ 

Threads per Inch

11

" " " in Boilers

"

"

Material " "

Steel

Thickness of Combustion Chamber Sides Approved

 $\frac{11}{16}"$ 

" " " " in Boilers

"

Pitch of Screwed Stays in C.O. Sides

 $8\frac{3}{8}" \times 8\frac{3}{4}"$ 

Diar. " " Approved

 $1\frac{3}{4}"$ 

Threads per Inch

11

" " " in Boilers

"

"

Material " "

Steel.

Thickness of Combustion Chamber Backs Approved

 $\frac{11}{16}"$ 

" " " in Boilers

"

Pitch of Screwed Stays in C.O. Backs

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

Diar. " " Approved

 $1\frac{3}{4}"$ 

Threads per Inch

11

" " " in Boilers

"

"

Material " "

Steel.

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

yes.  
 $\frac{3}{4}"$ 

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

4.

" " " Centre "

2"

Depth and Thickness of Girders

 $10\frac{1}{2}" \times \frac{3}{4}"$  (double)

Material of Girders

Steel.

No. of Stays in each

3.

No. of Tubes, each Boiler

320

Size of Lower Manholes

 $16" \times 12"$ 

## VERTICAL DONKEY BOILERS

No. of Boilers	Type
Greatest Int. Diam.	Height
Height of Boiler Crown above Fire Grate	Are Boiler Crowns Flat or Dish'd?
Internal Radius of Dish'd Boilers	Thickness of Plates
Description of Stays in Boiler Crowns	Width of Overlap
Diam. of Rivet Holes	Height of Rivet Crowns above Fire Grate
Are Rivet Crowns Flat or Dish'd?	External Radius of Dish'd Crowns
No. of Crown Stays	Dist. between Stays
Internal Diam. of Franch at Top	Thickness of Plates
No. of Water Tubes	Dist. between
Material of Water Tubes	Size of Manhole in Shell
Thickness of Manhole in Shell	Thickness of Combustion Back
Boiler material with Rivet	Grate Surface

## SUPERHEATERS

Description of Superheaters	Where situated?
Which Boilers are connected to Superheaters?	Are Superheaters in front of water boilers or working?
Are Superheaters in front of water boilers or working?	Are they fitted with steam traps?
Are they fitted with steam traps?	Dist. between valves
Dist. between valves	Pressure on Valves



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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			
Diarm. 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	Diarm.	Material	
External Diarm. of Firebox at Top		Bottom	Thickness of Plates
No. of Water Tubes	Ext. Diarm.	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

Diarm.

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	
	Material	
	Internal, Welded or Seamless	
	Internal Diarm.	
	Thickness	
	How are Flanges secured?	
	Date of Hydraulic Test	
	Test Pressure	
	No. of Pipes	
	Material	
	Internal, Welded or Seamless	
	Internal Diarm.	
	Thickness	
	How are Flanges secured?	
	Date of Hydraulic Test	
	Test Pressure	
	No. of Pipes	
	Material	
	Internal, Welded or Seamless	
	Internal Diarm.	
	Thickness	
	How are Flanges secured?	
	Date of Hydraulic Test	
	Test Pressure	



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## MAIN STEAM PIPES.

No. of Lengths **4**  
 Material **Wrought iron**  
 Brazed, Welded or Seamless **Welded**  
 Internal Diam. **4½"**  
 Thickness **¼"**  
 How are Flanges secured? **Screwed**  
 Date of Hydraulic Test **31-5-20**  
 Test Pressure **500 lb.**

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

Finished by Dunlop Breuners & Co.



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## EVAPORATORS.

No. *one* Type *vertical* Tons per Day *15*  
 Makers *G. & J. Weir Ltd.*  
 Working Pressure *15* Test Pressure *Shell 30 lb. Coils 420* Date of Test *30-9-1919.*  
 Date of Test of Safety Valves under Steam *5-6-20.*

## FEED WATER HEATERS.

No. *one* Type *Direct contact.*  
 Makers *G. & J. Weir Ltd.*  
 Working Pressure *atmosphere* Test Pressure *40 lb.* Date of Test *22-11-19.*  
*5-lb.*

## FEED WATER FILTERS.

No. *one* Type *gravitation* Size  
 Makers *Dunlop Bremner & Co.*  
 Working Pressure *atmos.* Test Pressure *✓* Date of Test *✓*

## LIST OF DONKEY PUMPS.

1. *Ballast, fly wheel type, 9" x 9" x 9", by Amos & Smith, of Hull.*
2. *General service, vert. 6 1/4" x 4 3/4" x 6", with float tank, by Amos & Smith.*



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## SPARE GEAR.

No. of Top End Bolts.	2	No. of Bot. End Bolts.	2	No. of Cylinder Cover Studs	6
" Coupling Bolts	6	" Main Bearing Bolts	2	" Valve Chest "	
" Junk Ring Bolts	6	" Feed Pump Valves	1 set	" Bilge Pump Valves	1 set
" H.P. Piston Rings		" I.P. Piston Rings		" L.P. Piston Rings	
" " Springs		" " Springs		" " Springs	
" Safety Valve "	1	" Fire Bars	80 + 8 wing	" Feed Check Valves	1
" Piston Rods		" Connecting Rods		" Valve Spindles	
" Air Pump Rods		" Air Pump Buckets		" Air Pump Valves	1 set
" Cir. "		" Cir. "		" Cir. "	
" Crank Shafts		" Crank Pin Bushes		" Crosshead Bushes	
" Propeller Shafts		" Propellers	1	" Propeller Blades	Solid.
" Boiler Tubes	6 plain	" Condenser Tubes	3	" Condenser Ferrules	20.

## OTHER ARTICLES OF SPARE GEAR:—

1 donkey feed check valve, 4 escape valve springs,  
 1 back bridge plate, 1 set front baffle plates,  
 1 eccentric strap, spares for centrifugal circu-  
 lating pump, firebricks, & 6 stay nests: also set  
 of gear for dynamo engine.

## REFRIGERATORS



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## 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.

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

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## ELECTRIC LIGHTING.

Installation Fitted by

*J. H. Holmes.*

No. and Description of Dynamos

*one 10 Kw. direct coupled to*

Makers of Dynamos

*J. H. Holmes.**(Single Robey engine.*

Capacity

*100*

Amperes, at

*100*

Volts,

*350*

Revol. per Min.

Current Alternating or Continuous

*Continuous*

Single or Double Wire System

*Double*

Position of Dynamos

*Starboard <sup>side</sup> engine-room, bottom platform.*

Main Switch Board

*"**"*

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

*5*

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.
Saloon accom. & forward.	3 42 3 1 arc lamp.	32 16 8	25.6	$\frac{7}{14}$	1000 amp. per sq. in.	100%	
Engine and boiler rooms.	30	16	16.8	$\frac{7}{14}$	"	"	600 megohms.
Midship and after accom.	2 50 1 1 arc lamp.	32 16 8	21.9	$\frac{19}{18}$	"	"	
Wireless	—	—	13	$\frac{7}{18}$	"	"	
Spare	—	—	—	—	—	—	

Total No. of Lights

*133*

No. of Motors driving Fans, &amp;c.

*none*

No. of Heaters

*none*

Current required for Motors and Heaters

*✓*



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

*One each in  
Chart room, Saloon pantry, Engineer's mess, and  
engine room. (Starboard side).*

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

How are Conductors in Engine and Boiler Spaces protected?

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

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

*none necessary.*

*armoured & piped.*

*" with W.T. glands*

Are all Joints in Cables properly soldered and thoroughly insulated so that the efficiency of the Cables

Is unimpaired?

*no joints*

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

*no joints.*

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

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously

affected by them?

*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?

What does the Resistance amount to?

Ohms.

Is the Installation supplied with a Voltmeter?

*yes.*

" " " an Ampere Meter?

Date of Trial of complete Installation

*10-6-20*

Duration of Trial

*6 hours.*



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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.

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. "Destro"

as ascertained by me from personal examination

*Wood Harrington*  
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.C.	Cub. ft.	:	:	:
Testing, &c. ...		:	:	:
Expenses ...		:	:	:
Total ...	£	:	:	:

It is submitted that this Report be approved,

*W. H. King*  
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.\* on the *22<sup>nd</sup> December*

*1920*

Fees advised

Fees paid



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Secretary.



## GENERAL INSTRUCTIONS

Form -

The following instructions are to be followed by all members of the Class of M.B.S. in the preparation of their reports.

1. The report should be prepared on one side of the paper only.

2. The report should be prepared in ink, and should be written in a clear, legible hand.

3. The report should be prepared on a separate sheet of paper, and should be numbered in the upper left-hand corner.

4. The report should be prepared on a separate sheet of paper, and should be numbered in the upper left-hand corner.

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