

No.

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 1544 No. in Register Book 2756

Received at Head Office.....

Surveyor's Report on the New Engines, Boilers, and Auxiliary  
Machinery of the ~~Single~~ <sup>Triple</sup> ~~Chain~~ <sup>Screw</sup> S. S.

— "TORTUGUERO" —

Official No. Port of Registry GLASGOW.

Registered Owners MESS<sup>rs</sup> ELDERS & FYFFES, L<sup>td</sup>

Engines Built by ALEX<sup>s</sup> STEPHEN & SONS, L<sup>td</sup>

at LINTHOUSE, GLASGOW.

Main Boilers Built by ALEX<sup>s</sup> STEPHEN & SONS, L<sup>td</sup>

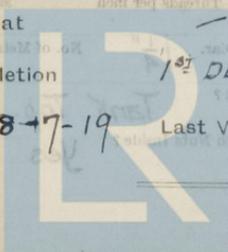
at LINTHOUSE, GLASGOW.

Donkey " " " " " "

at " " " " " "

Date of Completion 1<sup>st</sup> DECEMBER, 1921.

First Visit 8-7-19 Last Visit 1-12-21 Total Visits 120.



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004466-004476-0215

## RECIPROCATING ENGINES.

Works No. 493 No. of Sets 1 Description Tr. exp? Inverted, s.c.

No. of Cylinders each Engine 3 No. of Cranks 3  
 Diars. of Cylinders 27½", 46½", 78" Stroke 54"  
 Cubic feet in each L.P. Cylinder 149.3  
 Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.? Yes  
 " " " each Receiver? Yes  
 Type of H.P. Valves. Piston.  
 " 1st I.P. " Andrew & Cameron.  
 " 2nd I.P. "  
 " L.P. " Double ported slide  
 " Valve Gear Stephenson's Link motion.  
 " Condenser Weir's Cooling Surface 3500 sq. ft.  
 Diameter of Piston Rods (plain part) 8¼" Screwed part (bottom of thread) 5¾"  
 Material " 1.8.  
 Diar. of Connecting Rods (smallest part) 7½" Material I.S.  
 " Crosshead Gudgeons 8¼" Length of Bearing 9" Material W.I.  
 No. of Crosshead Bolts (each) 2 Diar. over Thrd. 3¼" Thrds. per inch Material S.  
 " Crank Pin " " 2 " 4½" " " Iron.  
 " Main Bearings 6 Lengths 17", 17½", 19"  
 " Bolts in each 2 Diar. over Thread 3¾" Threads per inch Material  
 " Holding Down Bolts, each Engine 163 Diar. 1¼" No. of Metal Chocks 167  
 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?

3 Connecting Rods, Forged by Wm. Beardmore & Co. Ltd.; Parkhead Forge.  
 3 Piston " " Do.  
 3 Crossheads, " Keay & Usher, Ltd., Sunderland.  
 Connecting Rods, Finished by Alex. Stephen & Sons, Ltd.  
 Piston " " Do.  
 Crossheads, " Do.  
 Date of Harbour Trial 9-10-21  
 " Trial Trip 1-12-21  
 Trials run at Firth of Clyde.  
 Were the Engines tested to full power under Sea-going conditions? Yes.  
 If so, what was the I.H.P.? 4600 Revols. per min. 88  
 Pressure in 1st I.P. Receiver, 85 lbs., 2nd I.P., — lbs., L.P., 26 lbs., Vacuum, 27 ins.  
 Speed on Trial 15 knots. 15.07  
 If the Conditions on Trial were such that full power records were not obtained give the following estimated data:—  
 Builders' estimated I.H.P. 3750 Revols. per min. 80?  
 Estimated Speed



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Connecting Rods forged by  
 Wm. Beal & Co. Ltd. Liverpool  
 3  
 2  
 1  
 Connecting Rods forged by  
 Alex. Stephen & Sons Ltd.  
 2  
 1  
 Date of Harbour Trial  
 Trial run at  
 It is the Engineer's report of the power under operating conditions  
 If the conditions on Trial were such that full power could not be obtained the following estimated  
 data—  
 Estimated I.H.P.  
 Estimated S.P.M.  
 Estimated Speed

## TURBINE ENGINES.

Works No.	Type of Turbines	No. of H.P. Turbines	No. of I.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?

Revolvs. 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

Revol. 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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No. of Blades each Propeller *4* Fitted or Solid? *Fitted.*  
 Material of Blades *Bronze* Boss *Cast Iron Steel*  
 Diam. of Propellers *16"* Pitch *19" 0"* Surface (each) *80-7 Projected 8 ft. 98.48 flat.*  
 Coefficient of Displacement of Vessel at  $\frac{1}{2}$  Moulded Depth *762*

Crank Shafts Forged by *Wm Beardmore & Co. Ltd, Phd.* Material *H.B. I.S.*  
 „ Pins „ *D<sup>o</sup>* „ „  
 „ Webs „ *do.* „ „ *M.S.*  
 Thrust Shafts „ *do.* „ „ *I.S.*  
 Intermed. „ „ *do.* „ „  
 Propeller „ „ *do.* „ „

Crank „ Finished by *Alex. Stephen & Sons, Ltd.*  
 Thrust „ „ *do.*  
 Intermed. „ „ *do.*  
 Propeller „ „ *do.*

STAMP MARKS ON SHAFTS.  
 INTERMEDIATE SHAFTS

B.C.  
 G.S.M.  
 6912  
 6/4/20.

TAIL SHAFTS

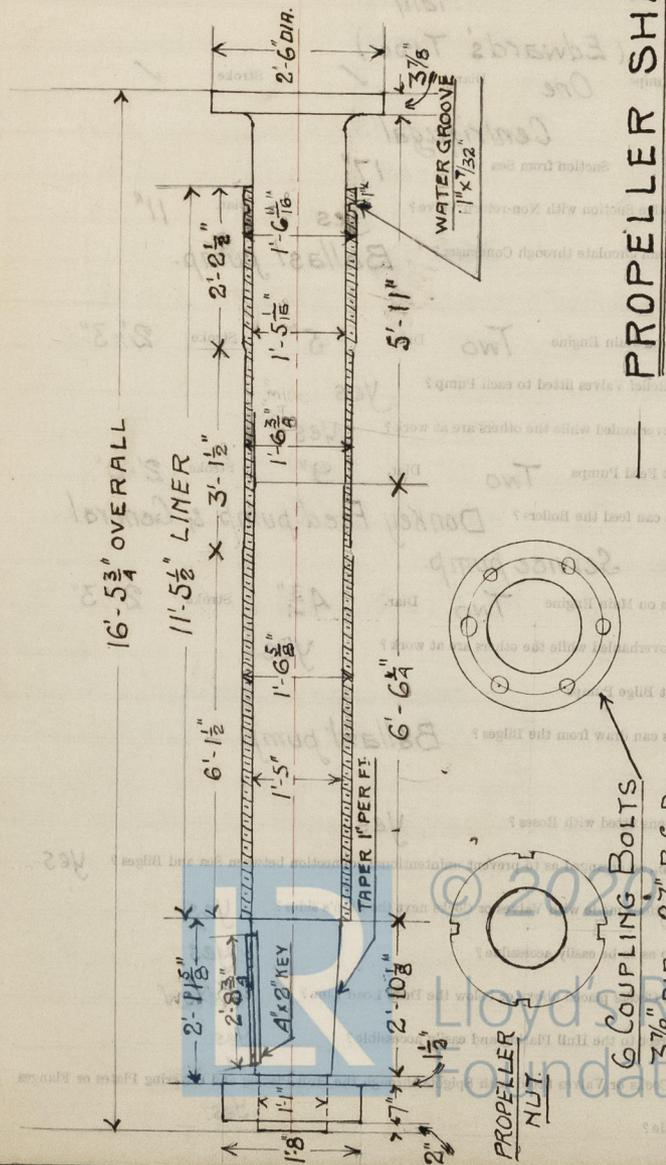
B.C.  
 M<sup>o</sup> 6912  
 G.S.M.  
 6/4/20.

CRANK SHAFT

B.C.  
 6912  
 G.S.M.  
 6/4/20.

B.C. 3430  
 B.C. 6145  
 R.S. 6149  
 R.S. 3/9/19  
 16/9/19

SKETCH OF PROPELLER SHAFT



PROPELLER SHAFT

ONE OFF THIS

No 493

6 COUPLING BOLTS  
 3 7/8\"/>

PROPELLER NUT

## PUMPS, ETC.

No. of Air Pumps *One*      Diar. *2" 4"*      Stroke *2" 3"*  
 Worked by Main or Independent Engines? *Main*  
*(Edwards' Type)*

No. of Circulating Pumps *One*      Diar.       Stroke   
 Type of " *Centrifugal*  
 Diar. of " *Suction from Sea*      *17"*  
 Has each Pump a Bilge Suction with Non-return Valve? *Yes*      Diar. *11"*  
 What other Pumps can circulate through Condenser? *Ballast pump.*

No. of Feed Pumps on Main Engine *Two*      Diar. *5"*      Stroke *2" 3"*  
 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 *Two*      Diar. *9"*      Stroke *2" 0"*  
 What other Pumps can feed the Boilers? *Donkey Feed pump & General Service pump.*

No. of Bilge Pumps on Main Engine *Two*      Diar. *4  $\frac{3}{4}$ "*      Stroke *2" 3"*  
 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 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? *Yes*  
 Are they placed so as to be easily accessible? *Yes*  
 Are the Discharge Chests placed above or below the Deep Load Line? *Below*  
 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

No. of Boilers *Two*  
 Type of Boilers *Water-tube*  
 Single or Double-ended *Single-ended*  
 No. of Furnaces in each *Two*  
 Type of Furnaces *Leeds Bull*  
 Date when first approved *10-2-19*  
 Approval Working Pressure *205 lbs per sq in*  
 Hydraulic Test Pressure *360 "*  
 Date of Hydraulic Test *2.5.19*  
 when made *1910*  
 Pressure at which valves were set *100 lbs*  
 Date of Accreditation Test *10-10-21*  
 Maximum Pressure under Accreditation Test *205 lbs*  
 System of Brackets *Woods' forced draught*  
 Can boilers be worked separately? *Yes*  
 Name of Maker *W. & A. Beardmore & Co. Ltd.*

Capacity of each boiler *1000*  
 The River Boiler of the *Leeds Forge Co.*  
 The Steel Cap of Scotland, Ltd.

Greatest Exhausting Diar. of Boilers *16" 0"*  
 Length *16' 0"*  
 Diameter of Heating Surface *16' 0"*  
 Total Heating Surface *16' 0"*  
 No. of Tubes *16' 0"*  
 The Boilers fitted with *Leeds Forge Co.*  
 The Boilers fitted with *Leeds Forge Co.*  
 The Boilers fitted with *Leeds Forge Co.*

No. of Boilers *Two*  
 Type of Boilers *Water-tube*  
 Single or Double-ended *Single-ended*  
 No. of Furnaces in each *Two*  
 Type of Furnaces *Leeds Bull*  
 Date when first approved *10-2-19*  
 Approval Working Pressure *205 lbs per sq in*  
 Hydraulic Test Pressure *360 "*  
 Date of Hydraulic Test *2.5.19*  
 when made *1910*  
 Pressure at which valves were set *100 lbs*  
 Date of Accreditation Test *10-10-21*  
 Maximum Pressure under Accreditation Test *205 lbs*  
 System of Brackets *Woods' forced draught*  
 Can boilers be worked separately? *Yes*  
 Name of Maker *W. & A. Beardmore & Co. Ltd.*

Capacity of each boiler *1000*  
 The River Boiler of the *Leeds Forge Co.*  
 The Steel Cap of Scotland, Ltd.

Greatest Exhausting Diar. of Boilers *16" 0"*  
 Length *16' 0"*  
 Diameter of Heating Surface *16' 0"*  
 Total Heating Surface *16' 0"*  
 No. of Tubes *16' 0"*  
 The Boilers fitted with *Leeds Forge Co.*  
 The Boilers fitted with *Leeds Forge Co.*  
 The Boilers fitted with *Leeds Forge Co.*



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## BOILERS.

Works No. 493

No. of Boilers 4 Type Multitubular.  
Single or Double-ended Single ended.

No. of Furnaces in each A

Type of Furnaces Leeds Bulb.

Date when Plan approved 10-2-19

Approved Working Pressure 205 Lbs. per sq. in.

Hydraulic Test Pressure 360 " " " "

Date of Hydraulic Test S.F. & P.F. 21.9.20. S.A. & P.A. 5.10.20.

" when Safety Valves set 19-10-21

Pressure at which Valves were set 210 Lbs.

Date of Accumulation Test 19-10-21

Maximum Pressure under Accumulation Test 217 Lbs.

System of Draught Howden's Forced.

Can Boilers be worked separately? Yes.

Makers of Plates W<sup>m</sup> Beardmore & Co. Ltd

" Stay Bars The Steel Coy. of Scotland, Ltd

" Rivets The Rivet. Bolt & Nut Co.

" Furnaces The Leeds Forge Co.

Greatest Internal Diam. of Boilers 16" 0"

" " Length " 11" 9"

Square Feet of Heating Surface each Boiler 2877.97 sq. ft.

" " Grate " " 68.5 sq. ft.

No. of Safety Valves each Boiler 1 Double Diam. 3 1/4"

Are the Safety Valves fitted with Easing Gear? Yes.

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

Test Cocks " 3 " Salinometer Cocks One

## — TEST MARKS ON BOILERS. —

S.F. & P.F. BOILERS.

B.C. TEST
No 3825
360 Lbs.
W.P. 205 "
G. S. M.
21. 9. 20

S.A. & P.A. BOILERS.

B.C. TEST
No 3859
360 Lbs.
W.P. 205 "
G. S. M.
5, 10, 20.

ACCUMULATION TEST.

	P.F.	S.F.	P.A.	S.A.
WATER IN GLASSES. BEFORE TEST.	9 3/4"	10 3/4"	9 3/4"	9 3/8"
AFTER "	7"	8 3/4"	6 3/8"	6 1/2"

GREATEST RISE OF PRESSURE

7 LBS

FAN IN ENGINE ROOM

1 1/8" To 1 1/2"

" " ASHPITS

1/2"

TIME

15 MINUTES [12.15 p.m. To 12.30 p.m.]

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

Pillars

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

Pipes

Are these Pipes connected to Boilers by Cocks or Valves?

Cocks

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

Valves

No. of Strakes of Shell Plating in each Boiler

3

Plates in each Strake

1

Thickness of Shell Plates Approved

$1\frac{17}{32}$ "

in Boilers

$1\frac{9}{16}$ "

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?

No Yes.

Thickness of outside Butt Straps

$1\frac{5}{32}$ "

inside

$1\frac{9}{32}$ "

Are Longitudinal Seams Hand or Machine Riveted?

Machine

Are they Single, Double, or Treble Riveted?

Treble

No. of Rivets in a Pitch

5

Diar. of Rivet Holes

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

Pitch

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

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

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

Pitch

3.94"

No. of Rows of Rivets in Back End Circumferential Seams

2

Are these Seams Hand or Machine Riveted?

Machine

Diar. of Rivet Holes

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

Pitch

3.94"

Size of Manholes in Shell

16" x 12"

Dimensions of Compensating Rings

2'7" x 3'3" x  $1\frac{7}{32}$ "



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Thickness of End Plates in Steam Space Approved  $\frac{7}{32}$ "  
 " " " " " in Boilers  $\frac{7}{32}$ "  
 Pitch of Steam Space Stays CENTRE WING  $16\frac{1}{8} \times 19$ "  
 Diam. " " " " Approved  $2\frac{7}{8}$  " 3" Threads per Inch 6  
 " " " " " in Boilers Do. " "  
 Material of " " " Steel  
 How are Stays Secured? Double Nuts. Washers outside C. row, wing stays.  
 Diam. and Thickness of Loose Washers on End Plates  $9\frac{3}{4} \times \frac{13}{16}$ "  
 " " Riveted " " "  
 Width " " Doubling Strips " " -

Thickness of Middle Back End Plates Approved  $\frac{7}{8}$ "  
 " " " " " in Boilers  $\frac{7}{8}$ "  
 Thickness of Doublings in Wide Spaces between Fireboxes  $\frac{11}{16}$ "  
 Pitch of Stays at " " " "  $8 \times 9$ "  
 Diam. of Stays Approved  $1\frac{5}{8}$ " Threads per Inch 9  
 " " in Boilers  $1\frac{5}{8}$ " " 9  
 Material " Steel  
 Are Stays fitted with Nuts outside? Yes

Thickness of Back End Plates at Bottom Approved  $\frac{7}{8}$ "  
 " " " " " in Boilers  $\frac{7}{8}$ "  
 Pitch of Stays at Wide Spaces between Fireboxes  $8 \times 9$ "  
 Thickness of Doublings in " "  $\frac{11}{16}$ "

Thickness of Front End Plates at Bottom Approved  $\frac{7}{8}$ "  
 " " " " " in Boilers  $\frac{7}{8}$ "  
 No. of Longitudinal Stays in Spaces between Furnaces 3.



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Diar. of Stays Approved  $2\frac{1}{4}" \& 2\frac{1}{2}"$  Threads per Inch 9  
 " " in Boilers 0.  
 Material " Steel  
 Thickness of Front Tube Plates Approved  $\frac{7}{8}"$   
 " " " " in Boilers  $\frac{7}{8}"$   
 Pitch of Stay Tubes at Spaces between Stacks of Tubes  $7\frac{3}{4}" \times 12"$   
 Thickness of Doublings in " " "  
 " Stay Tubes at " " "  $\frac{11}{16}"$   
 " " " " " " "  $\frac{3}{8}"$ ,  $\frac{7}{16}"$ ,  $\frac{1}{2}"$   
 Are Stay Tubes fitted with Nuts at Front End? No  
 Thickness of Back Tube Plates Approved  $\frac{13}{16}"$   
 " " " " in Boilers  $\frac{7}{8}"$   
 Pitch of Stay Tubes in Back Tube Plates  $7\frac{3}{4}" \times 12"$   
 " Plain "  $3\frac{7}{8}" + 4"$   
 Thickness of Stay Tubes  $\frac{3}{8}"$ ,  $\frac{7}{16}"$ ,  $\frac{1}{2}"$   
 " Plain " 8 W. G.  
 External Diar. of Tubes  $2\frac{3}{4}"$   
 Material " Wrot Iron, Lap welded  
 Thickness of Furnace Plates Approved  $\frac{17}{32}"$   
 " " " " in Boilers  $\frac{17}{32}"$   
 Smallest outside Diar. of Furnaces  $3' 2\frac{7}{16}"$   
 Length between Tube Plates  $7' 10"$   
 Width of Combustion Chambers (Front to Back)  $3' 2" \text{ MEAN}$   
 Thickness of " " Tops Approved  $\frac{11}{16}"$   
 " " " " in Boilers  $\frac{11}{16}"$   
 Pitch of Screwed Stays in C.C. Tops WING  $7\frac{1}{2}" \times 9\frac{1}{2}"$ . CENTRE  $7\frac{1}{2}" \times 10"$

Diar. of Screwed Stays Approved  $1\frac{1}{2}"$  Threads per Inch  
 " " in Boilers Do  
 Material " Steel  
 Thickness of Combustion Chamber Sides Approved  $\frac{11}{16}"$   
 " " " " in Boilers  $\frac{11}{16}"$   
 Pitch of Screwed Stays in C.C. Sides  $8' \times 8'$   
 Diar. " " Approved  $1\frac{1}{2}"$  Threads per Inch  
 " " in Boilers Do  
 Material " Steel  
 Thickness of Combustion Chamber Ends Approved  $\frac{11}{16}"$   
 " " " " in Boilers  $\frac{11}{16}"$   
 Pitch of Screwed Stays in C.C. Ends  $10' \times 10'$   
 Diar. " " Approved  $1\frac{1}{2}"$  Threads per Inch  
 " " in Boilers Do  
 Material " Steel  
 Are all Screwed Stays fitted with Nuts inside C.C.? Yes  
 Thickness of Combustion Chamber Bottoms  $\frac{11}{16}"$   
 No. of Girders over each Wing Chamber A  
 Depth and Thickness of Wing Chamber  $10' \times 10'$   
 Material of Girders Steel  
 No. of Tubes in each Row 12  
 Size of Lower Flanges  $12' \times 12'$

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Diag. of Screwed Stays Approved  $1\frac{3}{4}$ "  $1\frac{5}{8}$ " Threads per Inch 9

" " " in Boilers Do.

Material " " Steel

Thickness of Combustion Chamber Sides Approved  $\frac{11}{16}$ "

" " " " in Boilers  $\frac{11}{16}$ "

Pitch of Screwed Stays in O.C. Sides  $8" \times 9"$

Diag. " " Approved  $1\frac{5}{8}$ " Threads per Inch 9

" " " in Boilers Do.

Material " " Steel

Thickness of Combustion Chamber Backs Approved  $\frac{11}{16}$ "

" " " " in Boilers  $\frac{11}{16}$ "

Pitch of Screwed Stays in C.O. Backs  $7\frac{1}{2}" \times 10"$

Diag. " " Approved  $1\frac{3}{4}$ "  $1\frac{7}{8}$ " 2" Threads per Inch 9

" " " in Boilers Do.

Material " " Steel

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

Thickness of Combustion Chamber Bottoms  $\frac{25}{32}$ "

No. of Girders over each Wing Chamber 4

" " " Centre " 2

Depth and Thickness of Girders CENTRE  $9\frac{15}{16}" \times \frac{7}{8}"$  WING  $9\frac{5}{8}" \times \frac{7}{8}"$

Material of Girders Steel

No. of Stays in each 3

No. of Tubes, each Boiler 282 PLAIN 126 STAY 408 IN ALL

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

## VERTICAL DONKEY BOILERS

No. of Boilers

Height

Height of Boiler Crown above Fire Grate

Are Boiler Crown Flat or Dished?

Internal Radius of Dished Ends

Description of Radius in Boiler Crown

Line of River Boilers

Height of Vertical Crown above Fire Grate

Are Boiler Crown Flat or Dished?

Internal Radius of Dished Crown

No. of Crown Stays

Internal Diam. of Boiler at Top

No. of Water Tubes

Material of Water Tubes

Size of Manhole in Shell

Description of Compensating Pipe

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                      Width of Overlap

Height of Firebox Crowns above Fire Grate

Are Firebox Crowns Flat or Dished ?

External Radius of Dished Crowns                      Thickness of Plates

No. of Crown Stays                      Diar.                      Material

External Diar. of Firebox at Top                      Bottom                      Thickness of Plates

No. of Water Tubes                      Ext. Diar.                      Thickness

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compensating Ring

Heating Surface, each Boiler                      Grate Surface

SUPERHEATERS.

Description of Superheaters

Where situated ?

Which Boilers are connected to Superheaters ?

Can Superheaters be shut off while Boilers are working ?

No. of Safety Valves on each Superheater                      Diar.

Are                      "                      "                      fitted with Easing Gear ?

Date of Hydraulic Test                      Test Pressure

Date when Safety Valves set                      Pressure on Valves

MAIN STEAM PIPES.

No. of Boilers	Type	Height	Internal Diar.	Thickness	How are Joints secured ?	Date of Hydraulic Test	Test Pressure
1	Vertical	10'	10"	3/8"	Welded	10/21	150 lbs
2	Vertical	10'	10"	3/8"	Welded	10/21	150 lbs
3	Vertical	10'	10"	3/8"	Welded	10/21	150 lbs

ATTENTION: THE FOLLOWING INFO @ THE YEAR 2000



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## MAIN STEAM PIPES.

No. of Lengths	One	2	4
Material	S.D. Steel.	Wrot. Iron.	Wrot. Iron.
Brazed, Welded or Seamless	Seamless	L. W.	L. W.
Internal Diar.	10"	5 $\frac{7}{16}$ "	5 $\frac{7}{16}$ "
Thickness	$\frac{3}{8}$ "	$\frac{9}{32}$ "	$\frac{9}{32}$ "
How are Flanges secured?	Screwed & Exp <sup>d</sup> .	Screwed & Exp <sup>d</sup> .	Screwed & Exp <sup>d</sup> .
Date of Hydraulic Test	20/6/21	4/5/21.	4/5/21.
Test Pressure	615 Lbs.	615 Lbs	615 Lbs.

No. of Lengths	2
Material	L. W. Wrot. Iron.
Brazed, Welded or Seamless	Lap Welded
Internal Diar.	6 $\frac{3}{4}$ "
Thickness	$\frac{3}{8}$ "
How are Flanges secured?	Screwed & Exp <sup>d</sup> .
Date of Hydraulic Test	13/6/21
Test Pressure	615 Lbs.

No. of Lengths	2
Material	Wrot. Iron
Brazed, Welded or Seamless	Lap Welded
Internal Diar.	5 $\frac{7}{16}$ "
Thickness	$\frac{9}{32}$ "
How are Flanges secured?	Screwed & Exp <sup>d</sup> .
Date of Hydraulic Test	13/6/21
Test Pressure	615 Lbs

ALL MADE BY THE SCOTTISH TUBE CO. LTD., HELEN ST., GOVAN.

## EVAPORATORS.

No. of Lengths	One
Material	S.D. Steel.
Brazed, Welded or Seamless	Seamless
Internal Diar.	10"
Thickness	$\frac{3}{8}$ "
How are Flanges secured?	Screwed & Exp <sup>d</sup> .
Date of Hydraulic Test	20/6/21
Test Pressure	615 Lbs.

No. of Lengths	2
Material	L. W. Wrot. Iron.
Brazed, Welded or Seamless	Lap Welded
Internal Diar.	6 $\frac{3}{4}$ "
Thickness	$\frac{3}{8}$ "
How are Flanges secured?	Screwed & Exp <sup>d</sup> .
Date of Hydraulic Test	13/6/21
Test Pressure	615 Lbs.

No. of Lengths	2
Material	Wrot. Iron
Brazed, Welded or Seamless	Lap Welded
Internal Diar.	5 $\frac{7}{16}$ "
Thickness	$\frac{9}{32}$ "
How are Flanges secured?	Screwed & Exp <sup>d</sup> .
Date of Hydraulic Test	13/6/21
Test Pressure	615 Lbs



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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	1 Set	" Main Bearing Bolts	2	" Valve Chest "	6
" Junk Ring Bolts		" Feed Pump Valves	1 Set	" Bilge Pump Valves	1 Set.
" H.P. Piston Rings	1 Set	" I.P. Piston Rings	1 Set	" I.P. Piston Rings	✓
" " Springs		" " Springs		" " Springs	
" Safety Valve "	2	" Fire Bars	1 Set for 1 Boiler.	" Feed Check Valves	AM. A. Aux.
" Piston Rods	✓	" Connecting Rods		" Valve Spindles	2
" Air Pump Rods	1	" Air Pump Buckets	1	" Air Pump Valves	1 Set.
" Cir. "	✓	" Cir. "	✓	" Cir. "	✓
" Crank Shafts	✓	" Crank Pin Bushes	1 Pr.	" Crosshead Bushes	1 Pr.
" Propeller Shafts	1	" Propellers	✓	" Propeller Blades	1
" Boiler Tubes	2A	" Condenser Tubes	50	" Condenser Ferrules	50

## OTHER ARTICLES OF SPARE GEAR:-

## MAIN ENGINES:-

- 1 Set Metallic packing for 1 Piston rod.
- 1 " " " " 1 Valve spindle.
- 6 Pads for Michell Thrust block.
- 3 Cyl. Escape V. springs
- 2 Eccentric straps.
- 100 Assorted bolts & nuts.
- 4 Studs & Nuts for Feed pump glands.
- 4 Do. Bilge " "
- 6 Do. Feed " covers.
- 6 Do. Bilge " "
- 6 Do. Condenser Doors
- 4 Do. Air Pump glands
- 6 Do. " " covers
- 4 Do. V. Spindle glands.
- 1 Set Studs & Nuts for Propeller blades.

1 Set of Air Pump Guards & Studs.

1 Rubber disc for each Reducing Valve.

## MAIN BOILERS:-

72 Gauge glasses. 2 Safety valve springs.

3 Doz. vulcanite rings for Gauge glasses.

6 Studs & nuts for Manhole doors.

12 C.C. Stay nuts.

1 Furnace front complete [Air dist<sup>n</sup> box, valves, doors & mountings]

2 " doors " with mountings.

2 Ashpit doors

1 Set Mica plates.

18 Ass<sup>td</sup> parts for Furnace doors. [Handles, catches, hinges, etc.]

1 Portable Air Gauge.

## CENTRIFUGAL CIRCULATING PUMP:-

1 H.P. & 1 L.P. Piston complete. 1 Piston rod complete. 1 Crank shaft.

1 V. Spindle. 1 Pump spindle & Impeller. Set of Met. packing.

## FAN ENGINE:-

1 Set of Metallic packing for piston rods.

FEED PUMPS, GEN<sup>l</sup> SERVICE PUMPS, BALLAST PUMP, SANITARY PUMP

REFRIGERATOR PUMP, FRESH WATER PUMP:-

1 Set Sublt<sup>n</sup> & del<sup>y</sup> v's.

2 Rings for Steam & water ends



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## ELECTRIC LIGHTING.

Installation Fitted by **CAMPBELL & ISHERWOOD, L<sup>TD</sup>** BOOTLE. LIVERPOOLNo. and Description of Dynamos **3. 4-POLE COMPOUND. INTERPOLE.**Makers of Dynamos **CAMPBELL & ISHERWOOD, L<sup>TD</sup>**Capacity " **550** Amperes, at **100** Volts. **450** Revols. per Min.Current Alternating or Continuous **CONTINUOUS**Single or Double Wire System **SINGLE**Position of Dynamos **STAR<sup>RD</sup> SIDE ENGINE ROOM. BOTTOM PLATFORM.**" Main Switch Board " " " **AFT BULKHEAD.**No. of Circuits to which Switches are provided on Main Switch Board **16.**

Particulars of these Circuits:—

CIRCUIT	N <sup>o</sup> OF LIGHTS	CANDLE POWER	CURRENT REQUIRED AMPS.	SIZE OF CONDUCTOR	CURRENT DENSITY	CONDUCTIVITY OF CONDUCTOR	INSULATION RESISTANCE PER MILE
14) PUBLIC & STATE ROOMS, &c.	70.	16	35	19/052	1000 D.A.M.	100%	2500 MGS.
15) ACCOMMODATION (PORT)	50	16	25	"	"	"	"
16) " (STAR <sup>RD</sup> )	96	16	48	19/064	"	"	"

Circuit.	Number of Lights.	Candle Power.	Current Required. Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
1) N <sup>o</sup> 1 COOLER MOTOR	-	-	250	37/103	1000 D.A.M.	100%	2,500 MGS.
2) " 2 " "	-	-	"	"	"	"	"
3) " 3 " "	-	-	"	"	"	"	"
4) " 4 " "	-	-	"	"	"	"	"
5) PUBLIC ROOM HEATERS	-	-	120	10 19/064	"	"	"
6) FORWARD HOLDS	54	16	27	30 7/064	"	"	"
7) AFT " "	63	"	32	19/052	"	"	"
8) POOP & FORECASTLE	38	"	19	7/064	"	"	"
9) ENGINE & BOILER ROOMS	39	"	20	"	"	"	"
10) REFRIGERATOR & COOLERS	36	"	18	"	"	"	"
11) EMERGENCY	60	"	60	19/064	"	"	"
12) ACCOMMODATION HEATERS	-	-	160	37/083	"	"	"
13) ASH HOISTS.	-	-	15	7/064	"	"	"

Total No. of Lights **506** No. of Motors driving Fans, &c. **40** No. of Heaters **46**Current required for Motors and Heaters **1350 AMPERES.**



## 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. "TORTUGUERO".

as ascertained by *me* from personal examination

*In order*  
*bb*

*Geo. S. Macfarlane*  
Engineer Surveyor to the British Corporation for the  
Survey and Registry of Shipping.

Fees—

## MAIN BOILERS.

		£	s.	d.
H.S.	11511	Sq. ft.	:	:
G.S.	274	"	:	:

## DONKEY BOILERS.

H.S.	/	Sq. ft.	:	:
G.S.	/	"	:	:

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£ : :

## ENGINES.

L.P.C.	149.3	Cub. ft.	:	:
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£ : :

Testing, &c. ...	:	:
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£ : :

Expenses ...	:	:
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Total ... £ : :

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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 *11th January 1922.*

Fees advised

Fees paid



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Secretary.

GENERAL CONSTRUCTION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	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
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It is submitted that this Report be approved.

*[Handwritten signature]*  
 Approved by the Committee for the Class of M.E.S. & S. in the  
*[Handwritten signature]*

*[Handwritten signature]*  
*[Handwritten signature]*



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