

No. 2029

TRANSFERRED TO:
L. R. SYSTEM

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 1829 No. in Register Book 3137

BALLYARNOT

EX

S.S. TAMNAMORE

Makers of Engines JOHN LEWIS & SONS

Works No. 174

Makers of Main Boilers JOHN LEWIS & SONS

Works No. 140

Makers of Donkey Boiler -

Works No. -

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office *12th March 1925*

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the Single Triple Screw STEAMER.

"TAMNAMORE"

Official No. *148143* Port of Registry *Belfast*

Registered Owners *John Kelly & Co Belfast*

Engines Built by *Messrs John Lewis & Son Aberdeen*

at *Aberdeen*

Main Boilers Built by *Messrs John Lewis & Son*

at *Aberdeen*

Donkey *None*

at

Date of Completion *3-3-25*

First Visit *27-3-24* Last Visit *3-3-25* Total Visits *62*



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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

Diam. of 1st Reduction Pinion } Width Pitch of Teeth
 " 1st " Wheel }

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion } Width Pitch of Teeth
 " 2nd " Wheel }

Estimated Pressure per lineal inch

Revs. per min. of Generators at Full Power

" Motors "

" " 1st Reduction Shaft

" " 2nd "

" " Propellers at Full Power

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial Knots. Propeller Revols. per min. S.H.P.

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 "

DESCRIPTION OF INSTALLATION.



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SHAFTING.

Are the Crank Shafts Built or Solid? *Built*

No. of Lengths in each *one* Angle of Cranks *120°*

Diar. by Rule *5.86* Actual *6"* In Way of Webs *6 5/8"*

" of Crank Pins *6"* Length between Webs *6 1/2"*

Greatest Width of Crank Webs *11 1/2"* Thickness *4"*

Least " " *8 3/8"* " " *4"*

Diar. of Keys in Crank Webs *1 1/8"* Length *2 3/4"*

" Dowels in Crank Pins *1"* Length *2 3/4"* Screwed or Plain *Plain*

No. of Bolts each Coupling *5* Diar. at Mid Length *1 1/2"* Diar. of Pitch Circle *9 3/4"*

Greatest Distance from Edge of Main Bearing to Crank Web *1 1/4"*

Type of Thrust Blocks *Horse Shoe*

No. " Rings *3*

Diar. of Thrust Shafts at bottom of Collars *6"* No. of Collars *3*

" " Forward Coupling *6"* At Aft Coupling *6"*

Diar. of Intermediate Shafting by Rule *none* Actual — No. of Lengths —

No. of Bolts, each Coupling — Diar. at Mid Length — Diar. of Pitch Circle —

Diar. of Propeller Shafts by Rule *6.35"* Actual *6 3/8"* At Couplings *6"*

Are Propeller Shafts fitted with Continuous Brass Liners? *Yes.*

Diar. over Liners *7 7/8" & 7 5/16"* Length of After Bearings *2'-4"*

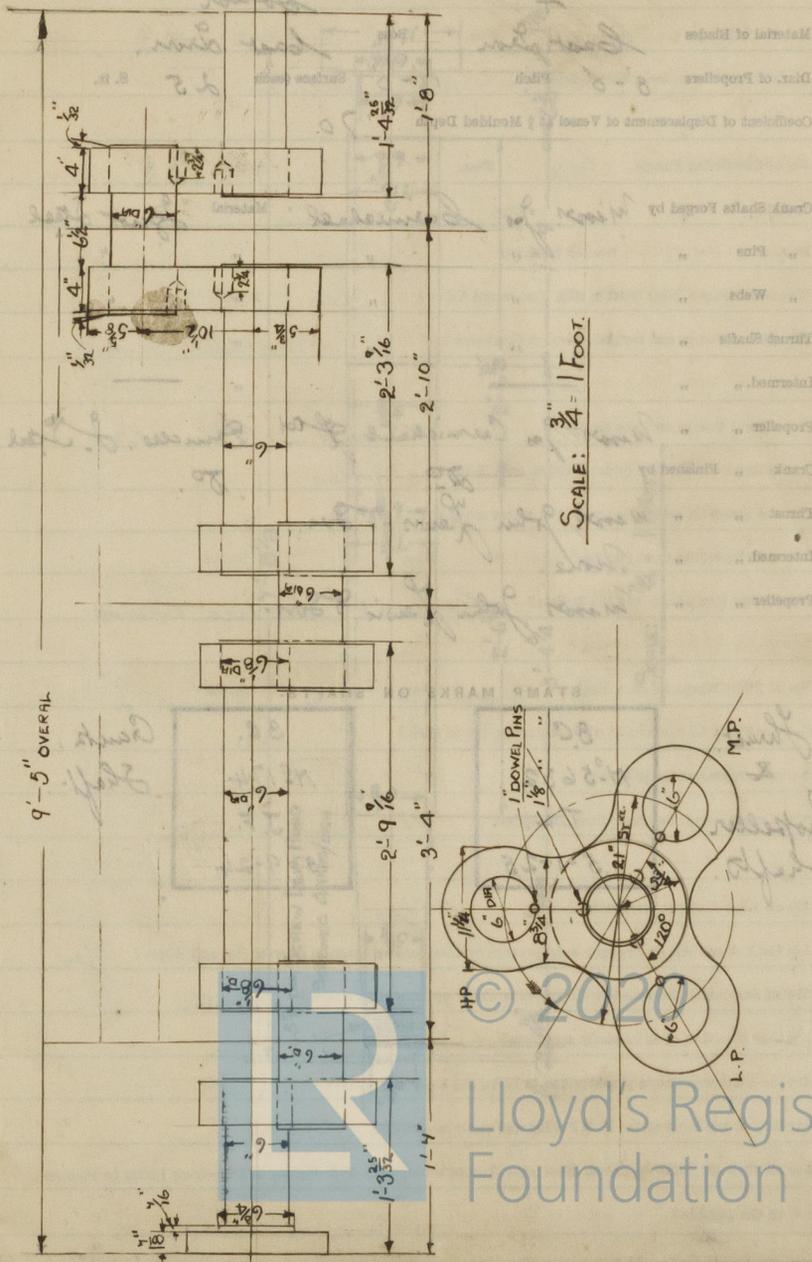
Of what Material are the After Bearings composed? *Lignum Vitae*

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.



BOILERS.

Works No. 140

No. of Boilers One. Type Single Ended. Multitubular

Single or Double-ended Single Ended.

No. of Furnaces in each Three.

Type of Furnaces Plain

Date when Plan approved ?

Approved Working Pressure 180 lbs Per Sq Inch.

Hydraulic Test Pressure 320 lbs per Sq Inch.

Date of Hydraulic Test 10-2-25

„ when Safety Valves set 25-2-25.

Pressure at which Valves were set 180 lbs.

Date of Accumulation Test 25-2-25.

Maximum Pressure under Accumulation Test 190 lbs. = 5%.

System of Draught Natural

Can Boilers be worked separately? —

Makers of Plates Messrs Wm Beardmore & Co Ltd Glasgow.

„ Stay Bars Messrs David Colville & Sons Ltd

„ Rivets „ The Rivet Bolt & Nut Coy.

„ Furnaces „ John Marshall & Co. Wetherwell

Greatest Internal Diam. of Boilers 12'-3¹⁵/₁₆"

„ „ Length „ 10'-0" Mean.

Square Feet of Heating Surface each Boiler 1479

„ „ Grate „ „ 46

No. of Safety Valves each Boiler Two Rule Diam. 2.46" Actual 2¹/₂"

Are the Safety Valves fitted with Easing Gear? Yes.

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

„ Test Cocks Three „ Salinometer Cocks One.

TEST MARK.

B.C. TEST.

W.P. 180 lbs.

T.P. 320 lbs

10-2-25 T.L.

Sizes of Safety Valve Rings.

Port Value. Starboard Value

$\frac{11}{32}$ $\frac{3}{8}$



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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? Yes

No. of Strakes of Shell Plating in each Boiler One

Plates in each Strake Two

Thickness of Shell Plates Approved $1\frac{1}{32}$ "

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

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? yes

Thickness of outside Butt Straps $\frac{25}{32}$ "

inside $2\frac{9}{32}$ "

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

Pitch $7\frac{13}{16}$ "

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? Hand

Diar. of Rivet Holes $1\frac{1}{16}$ "

Pitch 3"

No. of Rows of Rivets in Back End Circumferential Seams 2

Are these Seams Hand or Machine Riveted? Machine

Diar. of Rivet Holes $1\frac{1}{16}$ "

Pitch 3"

Size of Manholes in Shell $15\frac{3}{4}$ " x $19\frac{3}{4}$ "

Dimensions of Compensating Rings $2'-5\frac{3}{4}"$ x $2'-9"$



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Thickness of End Plates in Steam Space Approved

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

" " " " " in Boilers

Pitch of Steam Space Stays

$1'-6" \times 1'-4"$

Diar. " " " " Approved

$2\frac{3}{4}$ "

Threads per Inch 6

" " " " " in Boilers

$2\frac{3}{4}$ "

6

Material of " " "

Steel

How are Stays Secured?

Loose Nuts & Washers.

Diar. and Thickness of Loose Washers on End Plates

$9\frac{5}{8}" \times \frac{3}{4}"$ Thickness

" " " Riveted " " "

-

Width " " Doubling Strips

-

* Thickness of Middle Back End Plates Approved

$\frac{3}{4}"$
 $\frac{3}{4}" + \frac{1}{32}"$

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

-

Pitch of Stays at

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

Diar. 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

$\frac{3}{4}"$
 $\frac{3}{4}" + \frac{1}{32}"$

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

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

Thickness of Doublings in " "

-

Thickness of Front End Plates at Bottom Approved

$2\frac{7}{32}"$

" " " " " in Boilers

$2\frac{9}{32}"$

No. of Longitudinal Stays in Spaces between Furnaces

2

* Same Rate.



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Diar. of Stays Approved $2\frac{3}{8}$ Threads per Inch 6
 " " in Boilers $2\frac{3}{8}$ 6
 Material *Steel*
 Thickness of Front Tube Plates Approved $\frac{27}{32}$
 " " " " in Boilers $\frac{29}{32}$
 Pitch of Stay Tubes at Spaces between Stacks of Tubes $1'-1\frac{7}{8}"$
 Thickness of Doublings in " " " -
 " Stay Tubes at " " " -
 Are Stay Tubes fitted with Nuts at Front End? *Yes between wide water spaces.*
 Thickness of Back Tube Plates Approved $\frac{23}{32}$
 " " " in Boilers $\frac{23}{32}$
 Pitch of Stay Tubes in Back Tube Plates $10"$ Mean.
 " Plain " $4\frac{1}{2}" \times 4\frac{3}{8}"$
 Thickness of Stay Tubes $\frac{1}{4}" \times \frac{5}{16}"$
 " Plain " $N:9 W:9$
 External Diar. of Tubes $3\frac{1}{4}"$
 Material *Iron*
 Thickness of Furnace Plates Approved $\frac{45}{64}$
 " " " in Boilers $\frac{46}{64}$
 Smallest outside Diar. of Furnaces $3'-0\frac{1}{2}"$
 Length between Tube Plates $6'-10"$
 Width of Combustion Chambers (Front to Back) $2'-5\frac{1}{2}"$ over.
 Thickness of " " Tops Approved $\frac{21}{32}$
 " " " in Boilers $\frac{1}{16}$
 Pitch of Screwed Stays in C.O. Tops $9"-9"$



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Diam. of Screwed Stays Approved $1 \frac{5}{8}$ " Threads per Inch 9
 " " " in Boilers $1 \frac{5}{8}$ " 9
 Material " " *Steel*

Thickness of Combustion Chamber Sides Approved $\frac{21}{32}$ "
 " " " " in Boilers $\frac{11}{16}$ "
 Pitch of Screwed Stays in C.C. Sides $9 \frac{1}{2}$ " \times $8 \frac{3}{4}$ "
 Diam. " " Approved $1 \frac{5}{8}$ " Threads per Inch 9
 " " " in Boilers $1 \frac{5}{8}$ " 9
 Material " " *Steel*

Thickness of Combustion Chamber Backs Approved $\frac{21}{32}$ "
 " " " " in Boilers $\frac{23}{32}$ "
 Pitch of Screwed Stays in C.O. Backs $7 \frac{5}{8}$ " \times $10 \frac{1}{4}$ "
 Diam. " " Approved $1 \frac{5}{8}$ " Threads per Inch 9
 " " " in Boilers $1 \frac{5}{8}$ " 9
 Material " " *Steel*

Are all Screwed Stays fitted with Nuts inside C.O.? *Yes.*
 Thickness of Combustion Chamber Bottoms $\frac{11}{32}$ "
2 Boilers

No. of Girders over each Wing Chamber 3 *Double.*
 " " " Centre " 2 *Double.*

Depth and Thickness of Girders $8 \frac{3}{8}$ " \times $\frac{9}{16}$ "

Material of Girders *Steel*

No. of Stays in each 2

No. of Tubes, each Boiler 204

Size of Lower Manholes $15' \times 11''$

VERTICAL DONKEY BOILERS

No. of Boilers	Type	Height	Grate In Diam.	Height of Boiler Crown above Fire Grate	Are Boiler Crown Flat or Dished?	Internal Radius of Dished Boilers	Thickness of Plates	Width of Gratebar	Diam. of River Hole	Length of Ribbed Crown above Fire Grate	Are Ribbed Crown Flat or Dished?	Internal Radius of Dished Crown	No. of Crown Ribs	Diam.	Material	Thickness of Plates	Bottom	Internal Diam. of Ribbed Crown	No. of Water Tubes	Material of Water Tubes	Size of Manhole in Shell	Dimensions of Combustion Box	Heating Surface, each Boiler	

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 Basing 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 Diar.

Thickness

How are Joints secured ?

Date of Hydraulic Test

Test Pressure

No. of Pipes

Material

Internal, Welded or Seamless

Internal Diar.

Thickness

How are Joints secured ?

Date of Hydraulic Test

Test Pressure

No. of Pipes

Material

Internal, Welded or Seamless

Internal Diar.

Thickness

How are Joints secured ?

Date of Hydraulic Test

Test Pressure



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MAIN STEAM PIPES.

No. of Lengths	One		
Material	Copper.		
Brazed, Welded or Seamless	Seamless.		
Internal Diam.	3"		
Thickness	8 W.G.		
How are Flanges secured?	Brazed.		
Date of Hydraulic Test	17-2-25.		
Test Pressure	360 lbs		
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diam.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			
SUPERHEATERS			
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diam.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			

FEED WATER HEATERS

FEED WATER FILTERS

FEED WATER FILTERS



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REFRIGERATORS.

No. of Machines *2* Capacity of each *2*
 Makers *5*
 Description *6*
 No. of Steam Cylinders, each Machine *2* No. of Compressors *2* No. of Cranks *4*
 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.
<i>Capacity</i>				
<i>Compressor</i>				
<i>Single or Double Wire System</i>				
<i>Machine of Dynamometer</i>				
<i>Water Pump Room</i>				
<i>No. of Details in which the</i>				
<i>Particulars of Spare Gear</i>				
<i>Articles of Spare Gear for Refrigerating Plant carried on board:-</i>				



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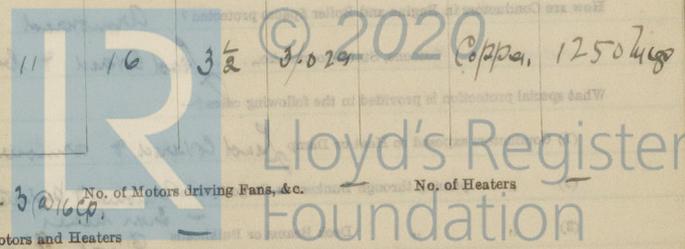
ELECTRIC LIGHTING.

Installation Fitted by *John Lewis & Sons Ltd. Aberdeen.*
 No. and Description of Dynamos *1 off. Compound Wound.*
 Makers of Dynamos *Messrs. Electric Motors Ltd. Warrington (Robey Engine)*
 Capacity .. *1 K.W.* Amperes, at *10* Volts, *100* Revols. per Min. *700*

Current Alternating or Continuous *Continuous*
 Single or Double Wire System *Double*
 Position of Dynamos *Placed fore & aft in Engine Room Star Side*
 „ Main Switch Board *Immediately aft of Dynamos. Star Side Engine Room*
 No. of Circuits to which Switches are provided on Main Switch Board *One Pair Dynamo Mains.*
 Particulars of these Circuits:— *3 Circuits*

Circuit.	Number of Lights.	Candle Power.	Current Required. Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
<i>One Pair Dynamo Mains</i>			<i>9</i>	<i>7/036</i>		<i>Copper.</i>	<i>1250 Mcgs.</i>
<i>2 Single to Mast Head Side Lamps. 1 Stern Lamp. Compass.</i>	<i>2</i>	<i>64</i>	<i>9 1/2</i>	<i>3/029</i>		<i>Copper.</i>	<i>1250 Mcgs.</i>
	<i>1</i>	<i>16</i>					
	<i>1</i>	<i>16</i>					
<i>Accommodation Bridge & Foremast & Cargo Clusters</i>	<i>19</i>	<i>16</i>	<i>4</i>	<i>3/029</i>		<i>Copper.</i>	<i>1250 Mcgs.</i>
<i>Machinery Office Accommodation aft</i>	<i>11</i>	<i>16</i>	<i>3 1/2</i>	<i>3/029</i>		<i>Copper.</i>	<i>1250 Mcgs.</i>

Total No. of Lights *43 @ 16 Cp.* No. of Motors driving Fans, &c. _____ No. of Heaters _____
 Current required for Motors and Heaters _____



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

Handwritten notes:
 Main Switch Board
 Positions of Auxilliary Switch Boards
 No. of Switches on each

Position of Switch Board	No. of Switches
Main Switch Board	1
Auxiliary Switch Board	1

Are Out-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits

On Aux. " " each Auxilliary Circuit

Wherever a Cable is reduced in size 7/0.36 to 3/0.29 - two Single .044 (Master Head Light)

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 Out-outs constructed of Non-Inflammable Material?

Are they placed so as to be always and easily accessible?

Smallest Single Wire used, No. .044 (Master) S.W.G., Largest, No. 7.036 S.W.G.

How are Conductors in Engine and Boiler Spaces protected? Armoured Cases

Saloons, State Rooms, &c., Lead covered & braided

What special protection is provided in the following cases?—

- (1) Conductors exposed to Heat or Damp Lead covered & armoured.
- (2) " " passing through Bunkers or Cargo Spaces Armoured & protected by Galv. Wire - Iron plates
- (3) " " Deck Beams or Bulkheads Each tube fitted

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?

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? *Infinity*

Ohms.

Is the Installation supplied with a Voltmeter? *yes*" " " an Ampere Meter? *yes*

Date of Trial of complete Installation 3-3-25

Duration of Trial

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

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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.

Have the Boilers been tested in accordance with the requirements of the Rules and the Approved Plans?

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Have the Boilers been tested in accordance with the requirements of the Rules and the Approved Plans?

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*

Does the above description of the Machinery and Boilers, so far as could be seen, sound and trustworthy?

Does the above description of the Machinery and Boilers, so far as could be seen, sound and trustworthy?

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

as ascertained by *me* from personal examination

What special provisions are provided in the following cases?

(1) Machinery exposed to heat or damp

(2) Machinery exposed to vibration or concussion

(3) Machinery exposed to corrosion

John Laurie
 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,

John King
 Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *18th March 1915*

Fees advised
 Fees paid

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 Lloyd's Register
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 Secretary.

In order to the Surveyor



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