

No. 1832

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2131 No. in Register Book 3486

" TRENDRA " KEYSHEY
S.S. GLEAR WATER

Makers of Engines Carter & Co. Ltd.

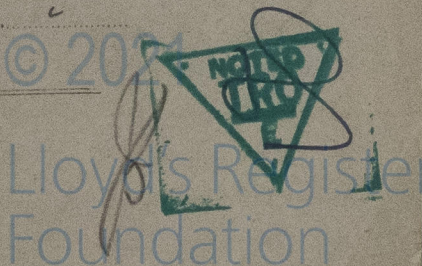
Works No. 314
Makers of Main Boilers North Eastern Marine Eng. Co. Ltd.

Works No. 2660

Makers of Donkey Boiler

Works No.

MACHINERY.



014364 - 014371 - 0002

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office 9th November 1928

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

Clearwater

Official No. 147798

Port of Registry *Widdesborough*

Registered Owners

Water Transport Co. Ltd.

Engines Built by

at

Main Boilers Built by

at

Donkey

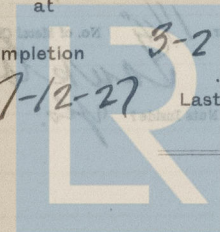
at

Date of Completion

First Visit 7-12-27

Last Visit 20-3-28

Total Visits 40



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RECIPROCATING ENGINES.

Works No. *314* No. of Sets *1* Description *High speed engine - 3 Cyls.*

No. of Cylinders each Engine *3* No. of Cranks *3*
 Diars. of Cylinders *16"-26"-44"* Stroke *33"*
 Cubic feet in each L.P. Cylinder *29.03*

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

" " " each Receiver? *yes.*

Type of H.P. Valves, *Piston.*
 " 1st L.P. " *Slide.*

" 2nd L.P. " *Slide.*

" L.P. " *Slide.*

" Valve Gear *Stephenson link.*

" Condenser *Surface.* Cooling Surface *1200* sq. ft.

Diameter of Piston Rods (plain part) *1 1/2"* Screwed part (bottom of thread) *3.03*

Material " *M.S.*

Diar. of Connecting Rods (smallest part) *4 3/8"* Material *M.S.*

" Crosshead Gudgeons *4 1/2"* Length of Bearing *4 1/2"* Material *M.S.*

No. of Crosshead Bolts (each) *4* Diar. over Thrd. *1 1/8"* Thrds. per inch *7* Material *M.S.*

" Crank Pin " " *2* " *2 3/8"* " *6* " " " " " "

" Main Bearings *6* Lengths *8 3/4"*

" Bolts in each *2* Diar. over Thread *2 1/4"* Threads per inch *6* Material *M.S.*

" Holding Down Bolts, each Engine *53* Diar. *1 1/4"* No. of Metal Chocks *53*

Are the Engines bolted to the Tank Top or to a Built Seat? *Laukton.*

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside? *yes.*

If not, how are they fitted? *yes.*

Connecting Rods, Forged by *Brown Bros.*

Piston " "

Crossheads, " "

Connecting Rods, Finished by *Cumt. & Co.*

Piston " "

Crossheads, " "

Date of Harbour Trial *16-3-28*

" Trial Trip *20-3-28*

Trials run at *In Las Baer.*

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

If so, what was the I.H.P.? *986*

Revs. per min. *114*

Pressure in 1st L.P. Receiver, *60* lbs., 2nd L.P., " lbs., L.P., *10.8* lbs., Vacuum, *25* ins.

Speed on Trial *no check taken.*

If the Conditions on Trial were such that full power records were not obtained give the following estimated

data:—

Builders' estimated I.H.P.

Revs. per min.

Estimated Speed



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TURBINE ENGINES.

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

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

Is Single or Double Reduction Gear employed?

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

Revol. per min. of H.P. Turbines at Full Power S.H.P.

" " 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 Knots. Propeller Revols. per min. S.H.P.

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.

No. of Turbo-Generator Sets Capacity of each

Type of Turbines employed

Description of Generator

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

Diam. of 1st Reduction Pinion } Width

" 1st " Wheel

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion } Width

" 2nd " Wheel

Estimated Pressure per lineal inch

Revol. per min. of Generator 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 Knots. Propeller Revols. per min. S.H.P.

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by



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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 Revs. per min.

S.H.P.

Makers of Turbines

" Generators

" Motors

" Reduction Gear

Turbine Spindles forged by

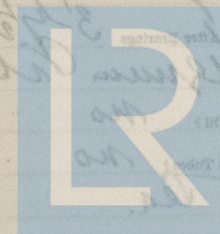
" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.

Type of Thrust Blocks
 No. of Hinges
 Diam. of Thrust Shafts at bottom of Collars
 Forward Coupling
 No. of Hinges each Coupling
 Diam. at Mid Length
 No. of Intermediate Shafting by Rule
 Actual
 No. of Lengths
 Diam. at Thrust Ends
 As Coupling
 Actual
 No. of Couplings
 Diam. of Propeller Shafts by Rule
 Actual
 Are Propeller Shafts fitted with Continuous Brass Liners?
 Diam. over Liners
 Of what Material are the After Bearings composed?
 Are Means provided for lubricating the After Bearings with Oil?
 How often Trials are made?



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SHAFTING.

Are the Crank Shafts Built or Solid?

built.

No. of Lengths in each

3

Angle of Cranks

120°

Diar. by Rule

Actual

8 13/16"

In Way of Webs

9 1/2"

" of Crank Pins

8 13/16"

Length between Webs

9 1/2"

Greatest Width of Crank Webs

16 1/2"

Thickness

5 7/16"

Least " "

13 1/2"

" "

4"

Diar. of Keys in Crank Webs

1 1/2"

Length

4"

" Dowels in Crank Pins

1"

Length

3 1/2"

Screwed or Plain

plain.

No. of Bolts each Coupling

6

Diar. at Mid Length

2 1/8"

Diar. of Pitch Circle

13 1/4"

Greatest Distance from Edge of Main Bearing to Crank Web

48"

Type of Thrust Blocks

Horseshoe.

No. " Rings

5

Diar. of Thrust Shafts at bottom of Collars

8 13/16"

No. of Collars

4

" " Forward Coupling

8 13/16"

At Aft Coupling

8 1/2"

Diar. of Intermediate Shafting by Rule

Actual

No. of Lengths

No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

Diar. of Propeller Shafts by Rule

Actual

9 3/4"

At Couplings

8 13/16"

Are Propeller Shafts fitted with Continuous Brass Liners?

yes.

Diar. over Liners

10 13/16" + 10 3/4"

Length of After Bearings

3 1/2"

Of what Material are the After Bearings composed?

Aluminum Nitride.

Are Means provided for lubricating the After Bearings with Oil?

no

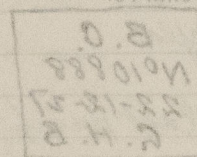
" " to prevent Sea Water entering the Stern Tubes?

no

If so, what Type is adopted?

open to Sea.

SKETCH OF CRANK SHAFT.



Handwritten notes:
 Crank Shaft
 120°
 10 13/16" + 10 3/4"



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PUMPS, ETC.

No. of Air Pumps

1

Diar.

15"

Stroke

16 1/2"

Worked by Main or Independent Engines?

Main engines.

No. of Circulating Pumps

1

Diar.

13"

Stroke

10"

Type of

"

Vertical duplex.

Diar. of

"

Suction from Sea

8"

Has each Pump a Bilge Suction with Non-return Valve?

yes.

Diar.

4"

What other Pumps can circulate through Condenser?

Ballast donkey.

No. of Feed Pumps on Main Engine

2

Diar.

2 3/4"

Stroke

16 1/2"

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

✓

Diar.

Stroke

What other Pumps can feed the Boilers?

General Service pump.

No. of Bilge Pumps on Main Engine

2

Diar.

2 3/4"

Stroke

16 1/2"

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

yes.

No. of Independent Bilge Pumps

one

What other Pumps can draw from the Bilges?

Ballast pump.

Are all Bilge Suctions fitted with Roses?

Mudboxes tail pipes

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?

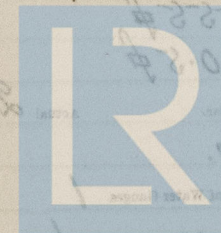
yes.

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

on the Outside?

yes.

BOILERS



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BOILERS.

Works No.

No. of Boilers

2

Type

Single or Double-ended

No. of Furnaces in each

Type of Furnaces

Date when Plan approved

Approved Working Pressure

Hydraulic Test Pressure

Date of Hydraulic Test

" when Safety Valves set

Pressure at which Valves were set

Date of Accumulation Test

Maximum Pressure under Accumulation Test

System of Draught

Can Boilers be worked separately?

Makers of Plates

" Stay Bars

" Rivets

" Furnaces

Greatest Internal Diam. of Boilers

" " Length "

Square Feet of Heating Surface each Boiler

" " Grate " "

No. of Safety Valves each Boiler

Are the Safety Valves fitted with Easing Gear?

No. of Pressure Gauges, each Boiler

" Test Cocks

2660

Cylindrical multitubular

single

2

Mighton.

180 lbs.

320 "

13-2-28.

16-3-28

185 lbs.

16-3-28

185 lbs.

natural.

O'Connell Bros.

R. B. & Co.
Broomeide & Co. @

12'-9"

10'-4 3/4"

1555 sq ft

40.5 sq ft

2

Rule Diam.

Actual

2 3/4"

ylo.

2

No. of Water Gauges

1

3

" Salinometer Cocks

1



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Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " " Approved Threads per Inch

" " " " " in Boilers "

Material of " " " "

How are Stays Secured? Approved

Diar. and Thickness of Loose Washers on End Plates

" " " " Riveted " " "

Width " " " Doubling Strips " "

Thickness of Middle Back End Plates Approved

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at " " " " "

Diar. of Stays Approved Threads per Inch

" " " " in Boilers "

Material " "

Are Stays fitted with Nuts outside? Approved

Thickness of Back End Plates at Bottom Approved

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

Threads per Inch

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

" " " " "

Thickness of Stay Tubes

" " " " "

External Diam. of Tubes

Material

Thickness of Furnace Plates Approved

" " " " "

Smallest outside Diam. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Top of Furnaces

Top of Furnaces

Top of Furnaces



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Diam. of Stays Approved Threads per Inch

" " in Boilers

Material " " " "

Thickness of Front Tube Plates Approved

" " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " " "

" Stay Tubes at " " " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back Tube Plates Approved

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain "

Thickness of Stay Tubes

" Plain "

External Diam. of Tubes

Material " " " "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diam. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of " " Tops Approved

No. of " " " in Boilers

Pitch of Screwed Stays in C.O. Tops

Same as s/s Schwater

Threads per Inch

Diam. of Screwed Stays Approved

" " " in Boilers

Material " " " "

Thickness of Combustion Chamber Tops Approved

" " " in Boilers

Pitch of Screwed Stays in C.O. Tops

Diam. " " Approved

" " " in Boilers

Material " " " "

Thickness of Combustion Chamber Tops Approved

" " " in Boilers

Pitch of Screwed Stays in C.O. Tops

Diam. " " Approved

" " " in Boilers

Material " " " "

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Channel

Centre " " "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tops over Boilers

Size of Screwed Stays



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Diam. of Screwed Stays Approved

Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides

Diam. " " Approved

Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Diam. " " Approved

Threads per Inch

" " " in Boilers

Material " "

External Diam. of Tubes

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " Centre

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

VERTICAL DONKEY BOILERS

No. of Boilers

Greatest Int. Diam.

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished?

Internal Radius of Dished Ends

Description of Seams in Boiler Crowns

Diam. of Rivet Holes

Height of Firebox Crown above Fire Grate

Are Firebox Crowns Flat or Dished?

External Radius of Dished Crowns

No. of Crown Stays

External Diam. of Firebox at Top

No. of Water Tubes

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compensating Ring

Heating Surface, each Boiler

Description of Superheaters

Where situated?

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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 Pipes

Material

Placed, Welded or Bolted

Internal Diar.

Thickness

How are Joints secured?

Date of Hydraulic Test

Test Pressure

No. of Pipes

Material

Placed, Welded or Bolted

Internal Diar.

Thickness

How are Joints secured?

Date of Hydraulic Test

Test Pressure



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MAIN STEAM PIPES.

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

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

6' 3" x 4" x 6" Vertical Pipe Heat
Evaporators
Bronze Bonnet

4 1/2" x 3" x 4" Vertical Pipe Heat
Water Pump

4" x 4" x 6" Vertical Pipe Heat
FEED WATER HEATERS
Pump

9" x 13" x 10" Vertical Pipe
Ballast Pump

FEED WATER FILTERS



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EVAPORATORS.

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

Date of Test of Safety Valves under Steam

FEED WATER HEATERS.

No.	Type	Makers	Working Pressure	Test Pressure	Date of Test

FEED WATER FILTERS.

No.	Type	Makers	Working Pressure	Test Pressure	Date of Test	Size

LIST OF DONKEY PUMPS.

6 1/2" x 4" x 6" Vertical duplex General
Service Donkey.

4 1/4" x 3" x 4" Vertical duplex Fresh
water pump.

4 x 4 x 6 Vertical duplex Camilan
Pump.

9" x 13" x 10" Vertical duplex
Ballast pump.



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OTHER ARTICLES OF SPARE GEAR—

LES OF SPARE GEAR—
Same as

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REFRIGERATORS.

No. of Machines

Capacity of each

Makers

Description

No. of Steam Cylinders, each Machine

No. of Compressors

No. of Cranks

Particulars of Pumps in connection with Refrigerating Plant and whether worked by Refrigerating Machines
or Independently

System of Refrigeration

„ Insulation

Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated Spaces?

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?

Are all Bilge, Sounding, and Air Pipes in Insulated Spaces properly insulated?

Are Thermometer Tubes so arranged that Water cannot enter and freeze in them?

Date of Test under Working Conditions

RESULTS OF TRIALS.

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

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Installation Fitted by *R. Pickerspeig & Sons Ltd.*
 No. and Description of Dynam *One Compound wound*
 Makers of Dynamos *Thaddeus & Sons Ltd.*
 Capacity *68* Amperes, at *110* Volts, *350* Revols. per Min.
 Current Alternating or Continuous *Continuous*
 Single or Double Wire System *Double*
 Position of Dynamos *Starling platform.*
 " Main Switch Board " "
 No. of Circuits to which Switches are provided on Main Switch Board *4*
 Particulars of these Circuits:—

ELECTRIC LIGHTING.

Installation Fitted by *R. Pickerspeig & Sons Ltd.*
 No. and Description of Dynam *One Compound wound*
 Makers of Dynamos *Thaddeus & Sons Ltd.*
 Capacity *68* Amperes, at *110* Volts, *350* Revols. per Min.
 Current Alternating or Continuous *Continuous*
 Single or Double Wire System *Double*
 Position of Dynamos *Starling platform.*
 " Main Switch Board " "
 No. of Circuits to which Switches are provided on Main Switch Board *4*
 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.
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Total No. of Lights

No. of Motors driving Fans, &c.

No. of Heaters

Current required for Motors and Heaters

Value as *2 1/2* "Beckwith"

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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 Outlets constructed of Non-inflammable Material?

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

Smallest Single Wire used, No. S.W.G., Largest, No. 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

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

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?


Have Tests been made to prove that this condition has been satisfactorily fulfilled?

Has the Insulation Resistance over the whole system been tested?

What does the Resistance amount to?

Ohms

Is the Installation supplied with a Voltmeter?

"  " an Ampere Meter?

Date of Trial of complete Installation *20-3-28* Duration of Trial

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

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.

Fees—

MAIN BOILERS.

	£	s.	d.
H.S. 3110 Sq. ft.	:	:	:
G.S. 81 "	:	:	:

DONKEY BOILERS.

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

ENGINES.

	£	s.	d.
L.P.C. 29.03 Cub. ft.	:	:	:
	£	:	:

Testing, &c. :

Expenses :

Total ... £ : :

It is submitted that this Report be approved.

J. J. Isaac
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the 21st March 1925



Fees advised

Fees paid

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.

CLEAR WATER

as ascertained by ^{us} _{me} from personal examination

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

1891. 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. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854. 855. 856.



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