

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No 39737

Port of Glasgow Date of First Survey 23/12/19 Date of Last Survey 16/2/20 No. of Visits 9  
 No. in on the ~~Iron~~ Steel S.S. Lusitania Port belonging to Rio De Janeiro  
 Reg. Book 327835 Built at Old Kilpatrick By whom Messrs Napier & Miller Ltd When built 1900  
 Owners The Blue Star Line Ltd Owners' Address  
 Yard No. 225 Electric Light Installation fitted by Messrs Salford Grier & Hay Ltd When fitted 1900

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Open Type Engine direct coupled to 18 kW  
compound wound dynamo  
 Capacity of Dynamo 180 Amperes at 100 Volts, whether continuous or ~~alternating~~ current cont  
 Where is Dynamo fixed Star Engine room Whether ~~single~~ or double wire system is used double  
 Position of Main Switch Board " " " near having switches to groups 12 circuits lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each 1 near Temp. dynamo with  
1 main switch + fuses volt-meter field Regulator  
+ Pilot lamp  
 If fuses are fitted on main switch board to the cables of main circuit yes and on each auxiliary switch board to the cables of auxiliary  
 circuits yes and at each position where a cable is branched or reduced in size yes and to each lamp circuit yes  
 If vessel is wired on the double wire system are fuses fitted to both flow and return wires or cables of all circuits including lamp circuits yes  
 Are the fuses of non-oxidizable metal yes and constructed to fuse at an excess of 100 per cent over the normal current  
 Are all fuses fitted in easily accessible positions yes Are the fuses of standard dimensions yes If wire fuses are used  
 are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit yes  
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes  
 Total number of lights provided for 229 arranged in the following groups:—  
 A 4 ft 20 lights each of 16 candle power requiring a total current of 5 Amperes  
 B off Cargo 51 lights each of 16 candle power requiring a total current of 12 Amperes  
 C Ind. Cargo 53 lights each of 16 candle power requiring a total current of 15 Amperes  
 D Navigation 9 lights each of various candle power requiring a total current of 5 Amperes  
 E Saloon 36 lights each of 30 candle power requiring a total current of 12 Amperes  
 E " 14 fans  
2 Mast head light with 2 lamps each of 32 candle power requiring a total current of 1 Amperes  
2 Side light with 2 lamps each of 32 candle power requiring a total current of 1 Amperes  
16 Cargo lights of each 96 candle power, whether incandescent or arc lights Incandescent  
 If arc lights, what protection is provided against fire, sparks, &c. —

Where are the switches controlling the masthead and side lights placed Chart Room

## DESCRIPTION OF CABLES.

Main cable carrying 175 Amperes, comprised of 37 wires, each .103 S.W.G. diameter, .250 square inches total sectional area  
 Branch cables carrying 15 Amperes, comprised of 7 wires, each .16 S.W.G. diameter, .022 square inches total sectional area  
 Branch cables carrying 8 Amperes, comprised of 7 wires, each .18 S.W.G. diameter, .012 square inches total sectional area  
 Leads to lamps carrying 1.5 Amperes, comprised of 1 wires, each .17 S.W.G. diameter, .002 square inches total sectional area  
 Cargo light cables carrying 3 Amperes, comprised of 1 wires, each .14 S.W.G. diameter, .005 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Armoured cable used in machinery spaces +  
cruis quarters. Cab Type cable used throughout Insulating  
rooms. Lead covered cable used in state rooms + Bridge  
 Joints in cables, how made, insulated, and protected None

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances — Are all joints in accessible  
 positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage —

Are there any joints in or branches from the cable leading from dynamo to main switch board —

How are the cables led through the ship, and how protected clipped to side of Insulating  
chambers and protected by wood lining



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible yes

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture Road casing  
and Galvanized Piping

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Armour & braiding

What special protection has been provided for the cables near boiler casings armour & braiding

What special protection has been provided for the cables in engine room armour & braiding

How are cables carried through beams Through bush holes through bulkheads, &c. W.T. Glands

How are cables carried through decks W.T. Deck pipes

Are any cables run through coal bunkers No or cargo spaces yes or spaces which may be used for carrying cargo, stores, or baggage —

If so, how are they protected Armour & braiding & Galvanized piping

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage No

If so, how are the lamp fittings and cable terminals specially protected —

Where are the main switches and fuses for these lights fitted —

If in the spaces, how are they specially protected —

Are any switches or fuses fitted in bunkers No

Cargo light cables, whether portable or permanently fixed Portable How fixed Portable

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel —

How are the returns from the lamps connected to the hull —

Are all the joints with the hull in accessible positions —

Is the installation supplied with a voltmeter yes, and with an amperemeter yes, fixed Switch Board

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas —

Are any switches, fuses, or joints of cables fitted in the pump room or companion —

How are the lamps specially protected in places liable to the accumulation of vapour or gas —

The copper used is guaranteed to have a conductivity of not less than that of the Engineering Standards Committee's standard and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than 600 megohms per statute mile at 60° Farhenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order and safe working condition.

WELFORD, GRIFF & MACKAY, LTD

Electrical Engineers

Date 19/2/20

COMPASSES.

Distance between ~~dynamo~~ or electric motors and standard compass 24 feet

Distance between ~~dynamo~~ or electric motors and steering compass 20 feet

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
.5	6	3	3
.25	3	3	3
—	—	—	—

Have the compasses been adjusted with and without the electric installation at work at full power yes

The maximum deviation due to electric currents, etc., was found to be — degrees on — course in the case of the standard compass and — degrees on — course in the case of the steering compass.

For Napier & Miller Ltd Builder's Signature. Date 21<sup>st</sup> Feb 1920

GENERAL REMARKS.

George Miller  
Director

This installation is only partly completed. A temporary 110 Volt generator having been fitted. All wiring is permanent & workmanship is satisfactory. For work to complete see attached report

Stanley Rankin  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 16 MAR 1920

Deportes

Will



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The Electrical equipment of this vessel is only partly completed. There is at present fitted a temporary generator for lighting purposes only. The voltage of this generator being 110.

A temporary Switch board has been fitted near this generator having 1- Pilot Lamp. 1- Single pole switch + 1 set of fuses also 1- Voltmeter.

This temporary Switch board feeds the lighting Panel on the main switch board.

When convenient to the owners the following Electrical plant is to be fitted.

2- 60 Kilowatt 220 Volt Generators

1- 15 Kilowatt 220 " Generator.

each generator is direct coupled to a high speed engine.

8- 15 H.P. + 1- 8 H.P. motors to be fitted in Refrigerating Engine room.

8- 15 H.P. and 1- 8 H.P. motors to be fitted in Main Engine room.

4- 3 H.P. fans to be fitted 2- in forward chamber + 2- in the after chamber.

All lamps to be changed from 110 to 220 Volts

The permanent cables are all fitted + designed for the full load current at 220 Volts.

The main cables to the generator are temporary and are to be replaced when power installation is completed.

J. Stanley Rankin

