

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 16402

Port of Greenock Date of First Survey 29<sup>th</sup> Oct 1912 Date of Last Survey 21<sup>st</sup> Feb 1913 No. of Visits 21  
 No. in Reg. Book on the Iron or Steel T. A. A. Benalla Port belonging to Greenock  
 Built at Greenock By whom Caird & Co When built 1912-13  
 Owners P&O Steam Navigation Coy Owners' Address London  
 Yard No. 322 Electric Light Installation fitted by Siemens Bros Dynamo Works Ltd When fitted 1912-13

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

3 Siemens 4 pole compound-wound dynamos each coupled direct to a Brotherhood engine, vertical, enclosed, compound type. Cylinders 7" and 11" X 7"

Capacity of Dynamo 350 Amperes at 105 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed In main engine room Whether single or double wire system is used Single

Position of Main Switch Board In main engine room having switches to groups A to P of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each  
None fitted

If cut outs 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 — and at each position where a cable is branched or reduced in size Yes and to each lamp circuit Yes

If cessel is wired on the double wire system are cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits —

Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 100 per cent over the normal current

Are all cut outs 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 —

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases Yes

Total number of lights provided for 659 arranged in the following groups:—

A 15 F. 62 K. — P. — lights each of 16 candle power requiring a total current of A 69.0 F 37.2 K 37.2 P 30.0 Amperes

B 8 G. 100 L. — lights each of " candle power requiring a total current of B 48.6 G. 60.0 L. 50.0 Amperes

C 9 H. 57 M. — lights each of " candle power requiring a total current of C 54.6 H. 34.2 M. 160.0 Amperes

D 90 I. — N. — lights each of " candle power requiring a total current of D 54.0 I. 48.6 N. 160.0 Amperes

E 63 J. — O. — lights each of " candle power requiring a total current of E 37.8 J. 24.0 O. 120.0 Amperes

2 Mast head lights with 1 lamps each of 16 candle power requiring a total current of 1.2 Amperes

2 Side lights with 1 lamps each of 16 candle power requiring a total current of 1.2 Amperes

27 Cargo lights each 3 X 16 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 In chart room

## DESCRIPTION OF CABLES.

Main cable carrying 350 Amperes, comprised of 61 wires, each 12 L.S.G. diameter, .50 square inches total sectional area

Branch cables carrying 160 Amperes, comprised of 37 wires, each .083 L.S.G. diameter, .20 square inches total sectional area

Branch cables carrying 50 to 60 Amperes, comprised of 19 wires, each 16 L.S.G. diameter, .060 square inches total sectional area

Leads to lamps carrying .6 Amperes, comprised of 1 wires, each 18 L.S.G. diameter, .0018 square inches total sectional area

Cargo light cables carrying 1.8 Amperes, comprised of 7 wires, each 20 L.S.G. diameter, .0070 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Conductors of high conductivity tinned copper wire, insulated with pure and vulcanised india-rubber, taped braided and compounded, then laid in well seasoned pine or teak casing or in galvanised steel conduit.

Joints in cables, how made, insulated, and protected

Jointless system

Are all the joints of cables thoroughly soldered, resin only having been used as a flux — 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 No

How are the cables led through the ship, and how protected In pine or teak casing or galvanised steel conduit secured to bulkheads or underside of decks. Protection as above

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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. Leak casing or galvanized steel conduit

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Leak casing

What special protection has been provided for the cables near boiler casings Galvanized steel conduit

What special protection has been provided for the cables in engine room Galvanized steel conduit

How are cables carried through beams In fibre plugs through bulkheads, &c. In special watertight glands

How are cables carried through decks In special deckpipes

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

If so, how are they protected Galvanized steel conduit

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage —

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

Where are the main switches and cut outs for these lights fitted —

If in the spaces, how are they specially protected —

Are any switches or cut outs fitted in bunkers No

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

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel By gunmetal shoe bolted to hull of ship

How are the returns from the lamps connected to the hull By 3/8" brass Whitworth screw and washers

Are all the joints with the hull in accessible positions Yes

The installation is — supplied with 1 voltmeter and 3 amperemeters fixed On main switch board

VESSELS BUILT FOR CARRYING PETROLEUM.

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

Are any switches, cut outs, 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 98 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 2000 megohms per statute mile after 24 hours' immersion in seawater.

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.

SIEMENS BROTHERS DYNAMO WORKS LIMITED,  
MARINE DEPARTMENT.

H. S. Kennedy

Electrical Engineers

Date 26<sup>th</sup> Feb 1913

COMPASSES.

Distance between dynamo or electric motors and standard compass Manager Over 100 feet

Distance between dynamo or electric motors and steering compass Over 100 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>7</u>	Amperes	<u>12</u>	feet from standard compass	<u>12</u>	feet from steering compass
A cable carrying	<u>.6</u>	Amperes	<u>in</u>	feet from standard compass	<u>in</u>	feet from steering compass
A cable carrying	<u>—</u>	Amperes	<u>—</u>	feet from standard compass	<u>—</u>	feet from steering compass

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 710 degrees on any course in the case of the standard compass and 710 degrees on any course in the case of the steering compass.

FOR CAIRD AND COMPANY LIMITED.

Ralston

Builder's Signature.

Date

5<sup>th</sup> March 1913

GENERAL REMARKS.

The materials and workmanship are good. The installation was tried on completion and found to work well.

It is submitted that this vessel is eligible for THE RECORD Elec. light.

J.W.D.  
12/3/13.

Wm. R. Austin

Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

GLASGOW 11 MAR. 1913

WED. MAR. 26. 1913

Elec. light



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