

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 16580

Port of **GREENOCK** Date of First Survey **15/9/13** Date of Last Survey **5/12/13** No. of Visits **17**
 No. in Reg. Book on the Iron or Steel **J. D. D. "Berrima"** Port belonging to **Greenock**
 Built at **Greenock** By whom **Messrs. Caird & Coy** When built **1913**
 Owners **Messrs. The RPO Steam Navigation Co.** Owners' Address **London**
 Yard No. **Electric Light Installation fitted by Messrs. Siemens Bros Dynamo Works** when fitted **1913.**

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 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 **—**

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 **673** arranged in the following groups:—

A	17	F. 60.	K. - P. -	lights each of	25	candle power requiring a total current of	A. 35-1. F. 18-0. K. 42-1. P. 30-0	Amperes
B	81	G. 112.	L. -	lights each of	"	candle power requiring a total current of	B. 69-0. G. 33-6. L. 72-0.	Amperes
C	90	H. 57.	M. -	lights each of	"	candle power requiring a total current of	C. 27-0. H. 16-1. M. 20-0.	Amperes
D	93	I. -	N. -	lights each of	"	candle power requiring a total current of	D. 27-9. I. 52-2. N. 20-0.	Amperes
E	63	J. -	O. -	lights each of	"	candle power requiring a total current of	E. 18-9. J. 45-6. O. 120-0.	Amperes
2		Mast head lights	with 1 lamp each,	of	25	candle power requiring a total current of	.6	Amperes
2		Side lights	with 1 lamp each,	of	25	candle power requiring a total current of	.6	Amperes
10		Cargo lights	of	3 x 25 C.P. each		candle power, whether incandescent or arc lights	10 arc lamps	

If arc lights, what protection is provided against fire, sparks, &c. **arc lamps supplied by Owners**

Where are the switches controlling the masthead and side lights placed **In Charthouse**

DESCRIPTION OF CABLES.

Main cable carrying	350	Amperes, comprised of	61	wires, each	.108	S.W.G. diameter,	.550	square inches total sectional area
Branch cables carrying	160	Amperes, comprised of	37	wires, each	.083	S.W.G. diameter,	.20	square inches total sectional area
Branch cables carrying	35	Amperes, comprised of	19	wires, each	.17	S.W.G. diameter,	.046	square inches total sectional area
Leads to lamps carrying	3	Amperes, comprised of	1	wires, each	.18	S.W.G. diameter,	.0018	square inches total sectional area
Cargo light cables carrying	9	Amperes, comprised of	7	wires, each	.20	S.W.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 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, 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 **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**



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 galvanised steel conduit

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

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

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

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

How are cables carried through decks In watertight deck pipes

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 Galvanised steel conduit

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 —

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

Is the installation supplied with a voltmeter Yes, and with an amperemeter Yes, fixed In main switchboard

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 2000 megohms per statute mile at 60° Fahrenheit 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.

H. S. Bellamy Electrical Engineers Date 14 Jan 1914

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>3.8</u>	Amperes	<u>12</u>	feet from standard compass	<u>12</u>	feet from steering compass
A cable carrying	<u>.3</u>	Amperes	<u>in</u>	feet from standard compass	<u>in</u>	feet from steering compass
A cable carrying		Amperes		feet from standard compass		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. Astboard

FOR CAIRD AND COMPANY LIMITED. Arch. Paterson Builder's Signature. Date 19th Jan 1914

GENERAL REMARKS. The materials and workmanship are good. When completed the installation was tested and found to work satisfactorily.

It is submitted that this vessel is eligible for THE RECORD, Elec. light. JWD Wm. Austin
 29/1/14 Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute GLASGOW 27 JAN 1914
Elec. Light

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

600612—Transit.

