

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1943

Port of PHILADELPHIA Date of First Survey 27.6.12 Date of Last Survey Oct. 2.12 No. of Visits 7  
 No. in on the ~~Iron~~ Steel S.S. RAYO Port belonging to New York  
 Reg. Book 173 Built at Camden N.J. By whom New York SWS Co When built 1912-10  
 Owners Standard Oil Co Owners' Address New York  
 Yard No. 123 Electric Light Installation fitted by New York SWS Co When fitted 1912-10

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Direct connected generator steam turbine built by the General Electric Co

Capacity of Dynamo 140 Amperes at 110 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Engine room, mid platform Whether single or double wire system is used double

Position of Main Switch Board do having switches to groups of 225 lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each A. engine room (6) A. aft quarters stateroom (6)

B. fore room (6) B. midship quarters (4) C. forecabin (6) C. lowering machine (4)

D. pump room (14) E. aft quarters pent. (6)

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 cessel 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 225 arranged in the following groups:—

A 26 lights each of 16 candle power requiring a total current of 13 Amperes

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B 20 lights each of 16 candle power requiring a total current of 10 Amperes

B 44 lights each of 16 candle power requiring a total current of 22 Amperes

C 20 lights each of 16 candle power requiring a total current of 10 Amperes

C 19 lights each of 16 candle power requiring a total current of 9.5 Amperes

D 50 lights each of 16 candle power requiring a total current of 25 Amperes

E 20 lights each of 16 candle power requiring a total current of 10 Amperes

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

2 Side light with 2 lamps each of 16 candle power requiring a total current of 2 Amperes

4 Cargo lights of Si 16 candle power, whether incandescent or arc lights incandescent

If arc lights, what protection is provided against fire, sparks, &c. no arc lamps

Where are the switches controlling the masthead and side lights placed switchboard in pilot house

## DESCRIPTION OF CABLES.

Main cable carrying 140 Amperes, comprised of 6/16 wires, each 2/0 S.W.G. diameter, .182 square inches total sectional area

Branch cables carrying 50 Amperes, comprised of 19/15 wires, each #2 S.W.G. diameter, .075 square inches total sectional area

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Leads to lamps carrying 5 Amperes, comprised of 1 wires, each #14 S.W.G. diameter, .004 square inches total sectional area

Cargo light cables carrying 3 Amperes, comprised of 7/22 wires, each #14 S.W.G. diameter, .0042 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

White core, double rubber covered

and double braided with Grinnell tape

Joints in cables, how made, insulated, and protected Mechanical joint; soldered, resin used

as flux, covered with vulcanite rubber, taped & painted with

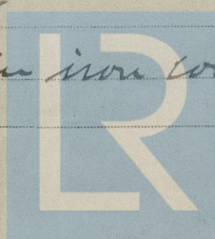
insulating compound

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances yes 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 yes

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 Completely encased in iron conduits





**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 *iron conduits*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *iron conduits*

What special protection has been provided for the cables near boiler casings *iron conduits*

What special protection has been provided for the cables in engine room *— do —*

How are cables carried through beams *iron conduits* through bulkheads, &c. *W.T. fitting*

How are cables carried through decks *W.T. fitting iron conduits*

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

If so, how are they protected *✓*

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 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 *✓*

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 on 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 *yes*

Are any switches, fuses, or joints of cables fitted in the pump room or companion *none*

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

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 *500* 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.

*New York ERS &*

Electrical Engineers

Date *Feb-5-12*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *150 feet*

Distance between dynamo or electric motors and steering compass *140*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>1/2</i>	<i>1</i>	<i>1</i>	
<i>1/2</i>	<i>20</i>	<i>4</i>	
<i>1/2</i>	<i>10</i>	<i>10</i>	

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 *none* degrees on *all* course in the case of the standard compass and *—* degrees on *—* course in the case of the steering compass.

*Hallagoun*

Builder's Signature.

Date *Feb-5-12*

**GENERAL REMARKS.**

*This installation of electric light has been fitted in accordance with the Rules. The work is sound & good. The electric light has been tried throughout & found to work well.*

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

*J. H. D. 28/10/12*

*Robert Haig*

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

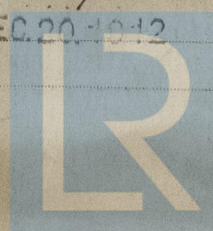
Committee's Minute

FRI NOV. 22 1912

FRI NOV. 26 1912

FRI DEC. 20 1912

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