

## REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 24344

Port of *Sunderland* Date of First Survey *28 Dec '09* Date of Last Survey *2<sup>nd</sup> Feby* No. of Visits *3*  
 No. in Reg. Book *on the Iron or Steel 65 Cacique* Port belonging to *London*  
 Built at *Sunderland* By whom *Short Bros. Ltd* When built *1910*  
 Owners *New York & Pacific S. S. Co. Ltd* Owners' Address *London*  
 Yard No. *368* Electric Light Installation fitted by *Sunderland Forge & Engineering Co. Ltd* When fitted *1910*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

*Multipolar Compound-wound Dynamo direct coupled to Open-type Inverted Engine both by Sunderland Forge & Engineering Co. Ltd.*  
 Capacity of Dynamo *150* Amperes at *100* Volts, whether continuous or alternating current *Continuous*  
 Where is Dynamo fixed *Bottom of Engine Room* Whether single or double wire system is used *Double*  
 Position of Main Switch Board *Close to Dynamo* having switches to groups *Three* 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 *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 cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits *Yes*

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 *No* 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 cut-outs constructed of incombustible materials and fitted on incombustible bases *Yes*

Total number of lights provided for *140* arranged in the following groups:—

A	<i>52</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>29.12</i>	Amperes
B	<i>46</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>26.88</i>	Amperes
C	<i>40</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>22.40</i>	Amperes
D		lights each of		candle power requiring a total current of		Amperes
E		lights each of		candle power requiring a total current of		Amperes
	<i>2</i>	Mast head light with	<i>1</i> lamps each of <i>32 (Double Fil.)</i>	candle power requiring a total current of	<i>2.24</i>	Amperes
	<i>2</i>	Side light with	<i>1</i> lamps each of <i>32 (Double Fil.)</i>	candle power requiring a total current of	<i>2.24</i>	Amperes
	<i>4</i>	Cargo lights of	<i>6</i> each <i>16</i>	candle power, whether incandescent or arc lights	<i>Incandescent</i>	

If arc lights, what protection is provided against fire, sparks, &c.

*None fitted*

Where are the switches controlling the masthead and side lights placed

## DESCRIPTION OF CABLES.

Main cable carrying	<i>80</i>	Amperes, comprised of	<i>19</i>	wires, each	<i>14</i>	L.S.G. diameter, <i>0.09442</i> square inches total sectional area
Branch cables carrying	<i>29.12</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>14</i>	L.S.G. diameter, <i>0.03463</i> square inches total sectional area
Branch cables carrying	<i>22.40</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>16</i>	L.S.G. diameter, <i>0.02227</i> square inches total sectional area
Leads to lamps carrying	<i>1.12</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>18</i>	L.S.G. diameter, <i>0.00181</i> square inches total sectional area
Cargo light cables carrying	<i>3.36</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>16</i>	L.S.G. diameter, <i>0.00322</i> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

*Pure Rubber, vulcanised rubber, taped and braided or lead covered.*

Joints in cables, how made, insulated, and protected

*None*

Are all the joints of cables thoroughly soldered, resin only having been used as a flux *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 *None*

How are the cables led through the ship, and how protected

*V.S.R. Cables run in iron pipes*

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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 *Iron pipes*

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

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

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

How are cables carried through beams *holes bored* through bulkheads, &c. *water-tight glands*

How are cables carried through decks *water-tight deck tubes*

Are any cables run through coal bunkers *Yes* or cargo spaces *Yes* or spaces which may be used for carrying cargo, stores, or baggage *Yes*

If so, how are they protected *Iron pipes*

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 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

How are the returns from the lamps connected to the hull

Are all the joints with the hull in accessible positions

The installation is *Yes* supplied with a voltmeter and *No* an amperemeter, fixed *on Switchboard*

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 *99* per cent, that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *600* 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.

**P. AND THE SUNDERLAND FORGE & ENGINEERING CO. LD.**

Electrical Engineers

Date *Feb 22<sup>nd</sup> 1910.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *about 240 feet.*

Distance between dynamo or electric motors and steering compass *about 230 "*

The nearest cables to the compasses are as follows:—

Cable carrying	Amperes	Distance from standard compass	Distance from steering compass
<i>56</i>	<i>10</i>	<i>led into</i>	<i>led into</i>
<i>56</i>	<i>10</i>	<i>led into</i>	<i>10</i>
<i>8</i>	<i>12</i>	<i>12</i>	<i>12</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 *no* degrees on *any* course in the case of the standard compass and *no* degrees on *any* course in the case of the steering compass.

**FOR SHORT BROTHERS, LIMITED**

Builder's Signature.

Date

*Feb 22<sup>nd</sup> 1910*

GENERAL REMARKS

*The above installation appears to have been fitted in accordance with the rules, was found satisfactory under working conditions & is in my opinion eligible for record.*

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

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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