

THUR 25 JUL 1895

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 31969

Port of *Newcastle* Date of First Survey *14 Nov 1904* Date of Last Survey *20 Jun 95* No. of Visits *28*  
 No. in Reg. Book *on the Iron or Steel S.S. "Rakia"* Port belonging to *Plymouth*  
 Built at *Newcastle* By whom *Hawthorn Leslie & Co* When built *1895*  
 Owners *New Zealand Shipping Co* Owners Address *London*  
 Yard No. *Electric Light Installation fitted by Bruce Scott & Mountaine* When fitted *June 1895*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Type *Vertical high speed engine & War office*  
 Capacity of Dynamo *120* Amperes at *105* Volts, whether continuous or alternating current *(continuous)*  
 Where is Dynamo fixed *in main engine room*  
 Position of Main Switch Board *in engine room* having switches to groups *A B C D E* of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each *Switches to each lamp*

If cut outs are fitted on main switch board to the cables of main circuit *yes* and on each auxiliary switch boards 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 *45%* 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 *Special size wires*  
 Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *yes*

Total number of lights provided for *171* arranged in the following groups:—  

A	<i>35</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>21</i>	Amperes
B	<i>17</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>10.2</i>	Amperes
C	<i>27</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>16.2</i>	Amperes
D	<i>57</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>34.2</i>	Amperes
E	<i>35 (Cargo 1)</i>	lights each of	<i>32</i>	candle power requiring a total current of	<i>40</i>	Amperes
1	Mast head light with	1 lamp each of	<i>Double filament</i>	candle power requiring a total current of	<i>1.2</i>	Amperes
2	Side lights with	1 lamp each of	<i>do do</i>	candle power requiring a total current of	<i>2.4</i>	Amperes
3	Cargo lights of	<i>7 = 32</i>	—	candle power, whether incandescent or arc lights	<i>Incandescent</i>	

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

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

## DESCRIPTION OF CABLES.

Main cable carrying	<i>120</i>	Amperes, comprised of	<i>37</i>	wires, each	<i>14</i>	L.S.G. diameter, <i>.167"</i>	square inches total sectional area
Branch cables carrying	<i>40</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>14</i>	L.S.G. diameter, <i>.038"</i>	square inches total sectional area
Branch cables carrying	<i>34</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>14</i>	L.S.G. diameter, <i>.038"</i>	square inches total sectional area
Leads to lamps carrying	<i>1</i>	Amperes, comprised of	<i>3</i>	wires, each	<i>22</i>	L.S.G. diameter, <i>.0027</i>	square inches total sectional area
Cargo light cables carrying	<i>9</i>	Amperes, comprised of	<i>19</i>	wires, each	<i>22</i>	L.S.G. diameter, <i>.011</i>	square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

*Pure India Rubber. Vulcanised Rubber. Tarsed Tape. Compound Tape. & Braided*

Joints in cables, how made, insulated, and protected *Pure Solder & resin only*  
*J.R. J.R. Tape. Chatterton. Tarsed Tape Compound*

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 *All can be got at*

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 *Special wood casing. Lead wire & iron piping where necessary*



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 *Lead Cable run in Iron pipe.*

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

What special protection has been provided for the cables near boiler casings *not near*

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

How are cables carried through beams *wood. Insulation pieces* through bulkheads, &c. *special screw glass*

How are cables carried through decks *Deck pipes - Admiralty pattern*

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

If so, how are they protected *special, protected by wood grounding or pipe*

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

If so, how are the lamp fittings and cable terminals specially protected *special "Bunker" guarded fitting*

Where are the main switches and cut outs for these lights fitted *on switches* *special protection*

If in the spaces, how are they specially protected *Cast-Iron Switch covers. (screwed)*

Are any switches or cut outs fitted in bunkers *yes*

Cargo light cables, whether portable or permanently fixed *removable* 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

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 installation is ☒ supplied with a voltmeter and ☒ an amperemeter, fixed *on Board*

The copper used is guaranteed to have a conductivity of *100* 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.

COMPASSES.

Distance between dynamo or electric motors and standard compass *approx. 95 feet.*

Distance between dynamo or electric motors and steering compass *" 45 "*

The nearest cables to the compasses are as follows:—

Cable	Current	Feet from standard compass	Feet from steering compass
A cable carrying <i>.6</i> Amperes	<i>14</i>	<i>4</i>	<i>4</i>
A cable carrying <i>40</i> Amperes	<i>100</i>	<i>80</i>	<i>80</i>
A cable carrying <i>—</i> Amperes	<i>—</i>	<i>—</i>	<i>—</i>

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

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.

GENERAL REMARKS.

*The Electric Light installation has been fitted by Messrs Scott & Mountain. So far as can be seen is sound and efficient*

Builder's Signature *Arthur Scott* Date *24<sup>th</sup> July 1895*

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

Committee's Minute.



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