

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 5990

Port of Belfast Date of First Survey Aug. 4th Date of Last Survey Sep 28th No. of Visits 16  
 No. in Reg. Book on the Iron or Steel T.S.S. Delta Port belonging to Belfast  
 Built at Belfast By whom Worham Clark & Co. Ltd. When built 1905  
 Owners Peninsular & Oriental S. N. Co. Ltd. Owners' Address London  
 Yard No. 218 Electric Light Installation fitted by Clarke Chapman & Co. Ltd. When fitted 1905

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Three enclosed Vertical Compound Engines coupled direct to three Compound Multipolar continuous current dynamos  
 Capacity of Dynamo 350 Amperes at 105 Volts, whether continuous or alternating current continuous  
 Where is Dynamo fixed on platform in Engine room (Port Side)  
 Position of Main Switch Board After end of platform 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 Each light & groups of lights fitted with separate switches

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

Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 50 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 Yes

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

Total number of lights provided for 628 arranged in the following groups:—

A	<u>127</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>72.5</u>	Amperes
B	<u>133</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>76.0</u>	Amperes
C	<u>165</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>94.2</u>	Amperes
D	<u>101</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>57.7</u>	Amperes
E	<u>102</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>58.3</u>	Amperes
<u>2</u>	Mast head light with	<u>2</u>	lamps each of	<u>16</u>	candle power requiring a total current of	<u>1.1</u> Amperes
<u>2</u>	Side light with	<u>2</u>	lamps each of	<u>16</u>	candle power requiring a total current of	<u>1.1</u> Amperes
<u>12</u>	Cargo lights of	<u>3</u>	<u>16</u>	candle power, whether incandescent or are lights	<u>incandescent</u>	

If are lights, what protection is provided against fire, sparks, &c. Totally enclosed in hexagonal clear glass lantern

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 13 L.S.G. diameter, 4.008 square inches total sectional area  
 Branch cables carrying 76 Amperes, comprised of 19 wires, each 15 L.S.G. diameter, 0.765 square inches total sectional area  
 Branch cables carrying 58 Amperes, comprised of 19 wires, each 16 L.S.G. diameter, 0.603 square inches total sectional area  
 Leads to lamps carrying 55 Amperes, comprised of 1 wires, each 18 L.S.G. diameter, 0.018 square inches total sectional area  
 Cargo light cables carrying 16 Amperes, comprised of 7 wires, each 20 L.S.G. diameter, 0.070 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

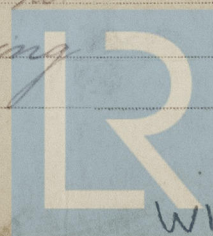
Insulated with vulcanized rubber taped & braided & laid in wood casing

Joints in cables, how made, insulated, and protected No joints except mechanical ones

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 No

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 wood casing



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**DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.**

Are they in places always accessible *No*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *in wood casing*

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

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

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

How are cables carried through beams *through lead bushes* through bulkheads, &c. *in watertight glands*

How are cables carried through decks *in iron deck tubes*

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

If so, how are they protected *in wood casing*

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

If so, how are the lamp fittings and cable terminals specially protected *Wires in wood casing, & watertight fittings. Lamp fitted on side of beam, not far from over lamp & terminals*

Where are the main switches and cut outs for these lights fitted *in baggage room*

If in the spaces, how are they specially protected *in suitable boxes*

Are any switches or cut outs fitted in bunkers *No*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *in watertight connection boxes*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Bolted to the beam*

How are the returns from the lamps connected to the hull *With brass screws & washers*

Are all the joints with the hull in accessible positions *Yes*

**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 *now* supplied with a voltmeter and *also* an amperemeter, fixed *on Switchboard*

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 *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.

For CLARKE, CHAPMAN &

*James L. Thompson* Secretary

Electrical Engineers

Date *Novem 14/05*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *116 FT*

Distance between dynamo or electric motors and steering compass *110 FT*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>14.2</i>	<i>8</i>	<i>4</i>	<i>4</i>
<i>6</i>	<i>4</i>	<i>8</i>	<i>8</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 \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the standard compass and \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the steering compass.

THE WORKMAN, CLARK & CO., LIMITED

Builder's Signature.

Date *31<sup>st</sup> Nov 1905*

**GENERAL REMARKS.**

*This installation appears to be of good description and has been fitted in accordance with the Rules.*

*R. J. Bueridge*

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

Committee's Minute

*It is submitted that this installation appears to be satisfactory.*



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.