

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 5408

Port of *Belfast* Date of First Survey *Jan 23, 1902* Date of Last Survey *3 March 1902* No. of Visits *11*
 No. in Reg. Book *182* on the *Iron or Steel* *S.S. Dunstaffnage* Port belonging to *Greenock*
 Built at *Belfast* By whom *W. R. Man Clark & Co. Ltd.* When built *1902*
 Owners *S.S. Dunstaffnage Co. Ltd.* Owners' Address
 Yard No. *182* Electric Light Installation fitted by *W. C. Martin & Co. Ltd. Glasgow* When fitted *1902*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two 4 pole compound wound dynamos with Culham Hughes direct coupled to 2 crank compound engine with automatic Chapin governor.
 Capacity of Dynamo *each 231* Amperes at *65* Volts, whether continuous or alternating current *continuous*

Where *Dynamos* fixed *in recess at top platform of Engine Room*

Position of Main Switch Board *near dynamos* having switches to groups *A. B. C. D. E. F.* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *A. Engine Room entrance for access deck 12*
Switches B. 2' class pantry 5 1/2' class pantry 6-C port 1 at 8. 1 at 6. D. port 1 at 4. 1 at 8. 1/2' class pantry 1 at 8. Wheelhouse 1 at 8.

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 *fifty* 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 *324* arranged in the following groups:—

A	<i>38</i>	lights each of	<i>16 x 10 of 32</i>	candle power requiring a total current of	<i>54</i>	Amperes
B	—	lights each of	<i>53 of 32</i>	candle power requiring a total current of	<i>99</i>	Amperes
C	<i>33</i>	lights each of	<i>16 x 10 of 32</i>	candle power requiring a total current of	<i>33</i>	Amperes
D	<i>60</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>55</i>	Amperes
E	<i>45</i>	lights each of	<i>16 x 3 of 32</i>	candle power requiring a total current of	<i>47</i>	Amperes
F	<i>2</i>	Mast head light with <i>2</i> lamps each of	<i>16 x 3 of 32</i>	candle power requiring a total current of	<i>70</i>	Amperes
	<i>2</i>	Side lights with <i>2</i> lamps each of	<i>32</i>	candle power requiring a total current of	<i>4</i>	Amperes

10 Cargo lights of *4* lights each *32* candle power, whether incandescent or are lights *incandescent*

If are lights, what protection is provided against fire, sparks, &c. *No are lights*

Where are the switches controlling the masthead and side lights placed *in Wheelhouse on Bridge*

DESCRIPTION OF CABLES.

Main cable carrying *231* Amperes, comprised of *37* wires, each *13* L.S.G. diameter, *2516* square inches total sectional area
 Branch cables carrying *54* Amperes, comprised of *19* wires, each *16* L.S.G. diameter, *0624* square inches total sectional area
 Branch cables carrying *33* Amperes, comprised of *19* wires, each *18* L.S.G. diameter, *0349* square inches total sectional area
 Leads to lamps carrying *3* Amperes, comprised of *1* wires, each *16* L.S.G. diameter, *0032* square inches total sectional area
 Cargo light cables carrying *5.7* Amperes, comprised of *108* wires, each — L.S.G. diameter, *006* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

H.C. Copper wire, twisted, insulated with pure vulcanizing India Rubber tape. The wire vulcanized together, braided & compounded. Two wires laid together braided & compounded & sheathed in steel or lead sheathing
 Joints in cables, how made, insulated, and protected *No Joints*

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 *No Joints*

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 *Steel armoured cables led in wire protected parts of the ship & clipped direct to ship. In cabins set. Twin lead covered wires run open.*

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes, Except when cargo in tween deck*

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

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

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

What special protection has been provided for the cables in engine room *Steel armour & Lead tubes*

How are cables carried through beams *Insulating bushes* through bulkheads, &c. *Water tight flanges*

How are cables carried through decks *Metal tubes fitted watertight to decks*

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 *Steel armour cables clipped close to deck protected by beams*

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

If so, how are the lamp fittings and cable terminals specially protected *Strong Lead covers*

Where are the main switches and cut outs for these lights fitted *In engine room*

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 *by fibre forks*

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 *at present* supplied with a voltmeter and *also with 2* amperemeters fixed *on Switchboard*

The copper used is guaranteed to have a conductivity of *98* 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.

W. C. Martin & Co Electrical Engineers

Date *4th April 1902*

COMPASSES.

Distance between dynamo or electric motors and standard compass *—*

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

The nearest cables to the compasses are as follows:—

A cable carrying	<i>20</i>	Amperes	<i>6</i>	feet from standard compass	<i>6</i>	feet from steering compass
A cable carrying	<i>10</i>	Amperes	<i>6</i>	feet from standard compass	<i>6</i>	feet from steering compass
A cable carrying	<i>2</i>	Amperes	<i>7</i>	feet from standard compass	<i>5</i>	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 *Nil* degrees on a *certain* course in the case of the standard compass and *Nil* degrees on *the same* course in the case of the steering compass.

WORKMAN, CLARK & CO., LIMITED,

Builder's Signature.

Date *7th April 1902*

GENERAL REMARKS.

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

R. J. Bennett

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

Committee's Minute *FRI. 11 JUL 1902*

TUES. 26 AUG 1902

TUES. 16 SEP 1902

It is submitted that this installation appears to meet the Rule requirements.

FRI. 17 OCT 1902

Lloyd's Register
Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.