

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7578

Port of *Belfast* Date of First Survey *5 Feb* Date of Last Survey *29 March* No. of Visits *9*
 No. in Reg. Book on the *Iron* *Orca* Ship belonging to *Liverpool*
 Built at *Belfast* By whom *Harland & Wolff L* When built *1903*
 Owners *Pacific S. W. Co* Owners' address *Liverpool*
 Yard No. *351* Electric Light Installation fitted by *W. H. Allen & Sons L* When fitted *1903*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two compound vertical engines directly coupled to two inverted horseshoe bipolar dynamos

Capacity of Dynamo *210* Amperes at *100* Volts, whether continuous or alternating current *Continuous*

Where ~~is~~ ^{are} Dynamos fixed *In dynamo room, middle platform.*

Position of Main Switch Board *4* having switches to groups *ABCDEFGHIJKL* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *One Switchboard 1st Salomon Salomon switches 1 ditto 2nd Salomon salomon switches*
1 ditto 1st Salomon salomon switches 1 ditto 2nd Salomon salomon switches
1 ditto Salomon to engine room 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 *Yes where double wire*
 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 *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 *605* arranged in the following groups:—

<i>16</i>	<i>16</i>	<i>lights each of</i>	<i>16</i>	<i>candle power requiring a total current of</i>	<i>66</i>	<i>Amperes</i>
<i>11</i>	<i>11</i>	<i>lights each of</i>	<i>11</i>	<i>candle power requiring a total current of</i>	<i>52</i>	<i>Amperes</i>
<i>57</i>	<i>57</i>	<i>lights each of</i>	<i>57</i>	<i>candle power requiring a total current of</i>	<i>119</i>	<i>Amperes</i>
<i>34</i>	<i>34</i>	<i>lights each of</i>	<i>34</i>	<i>candle power requiring a total current of</i>	<i>69</i>	<i>Amperes</i>
<i>32</i>	<i>32</i>	<i>lights each of</i>	<i>32</i>	<i>candle power requiring a total current of</i>	<i>66</i>	<i>Amperes</i>
<i>28</i>	<i>28</i>	<i>lights each of</i>	<i>28</i>	<i>candle power requiring a total current of</i>	<i>56</i>	<i>Amperes</i>
<i>71</i>	<i>71</i>	<i>lights each of</i>	<i>71</i>	<i>candle power requiring a total current of</i>	<i>142</i>	<i>Amperes</i>
<i>48</i>	<i>48</i>	<i>lights each of</i>	<i>48</i>	<i>candle power requiring a total current of</i>	<i>96</i>	<i>Amperes</i>
<i>40</i>	<i>40</i>	<i>lights each of</i>	<i>40</i>	<i>candle power requiring a total current of</i>	<i>80</i>	<i>Amperes</i>
<i>35</i>	<i>35</i>	<i>lights each of</i>	<i>35</i>	<i>candle power requiring a total current of</i>	<i>70</i>	<i>Amperes</i>
<i>2</i>	<i>32</i>	<i>1 lamp each of</i>	<i>32</i>	<i>candle power requiring a total current of</i>	<i>1.2</i>	<i>Amperes</i>
<i>2</i>	<i>32</i>	<i>1 lamp each of</i>	<i>32</i>	<i>candle power requiring a total current of</i>	<i>1.2</i>	<i>Amperes</i>

6 Cargo lights of *8x16 = 128* candle power, whether incandescent or arc lights *incandescent*

2 " " " *2000* " " " *Carbon's protected by lanterns with glass panes.*

Where are the switches controlling the masthead and side lights placed *in wheelhouse or bridge*
 " " " *mainmasthead* " " *aft*

DESCRIPTION OF CABLES.

Main cable carrying *210* Amperes, comprised of *37* wires, each *13* L.S.G. diameter, *2.50* square inches total sectional area

Branch cables carrying *80* Amperes, comprised of *19* wires, each *15* L.S.G. diameter, *1.79* square inches total sectional area

Branch cables carrying *35* Amperes, comprised of *19* wires, each *18* L.S.G. diameter, *1.35* square inches total sectional area

Leads to lamps carrying *4* Amperes, comprised of *7* wires, each *22* L.S.G. diameter, *1.004* square inches total sectional area

Cargo light cables carrying *4.8* Amperes, comprised of *145* wires, each *38* L.S.G. diameter, *1.004* square inches total sectional area

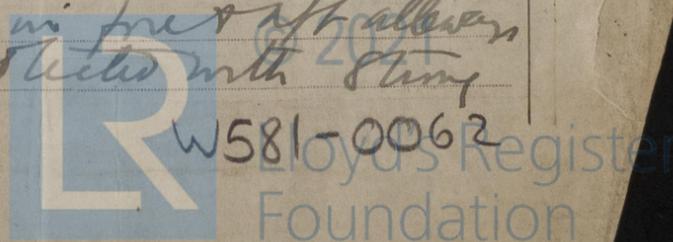
DESCRIPTION OF INSULATION, PROTECTION, ETC.

wires & cables insulated with layers of prime rubber & vulcanized rubber, protected by lapping of insulating rubber coated tape & hemp braiding impregnated with compound. Lead sheaths & cables are spliced joints, soldered & insulated with layers of prime rubber strips & Dyakente tape & finally varnished.

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 *No*

How are the cables led through the ship, and how protected *through beams in fore & aft alleyways cables led through fibre funnels & protected with string wood casing.*



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What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture. *the string*
teakwood casing painted for open deck lights.

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

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

What special protection has been provided for the cables in engine room *string teakwood casing for main, branches u u u*

How are cables carried through beams *through fibre fence through bulkheads, &c. through iron glands*

How are cables carried through decks *through galvanized iron deck pipes + rubber lined with fibre.*

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 *yes, in baggage room*

If so, how are the lamp fittings and cable terminals specially protected *string braided fittings*

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

If in the spaces, how are they specially protected *switches in the ^{baggage} room fitted in covers.*

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 *brass socket in dynamo pole piece.*

How are the returns from the lamps connected to the hull *soldered to brass with screw.*

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 *(1)* supplied with a voltmeter and *(2)* amperemeters fixed *main switch*

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 *2500* 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.

J. W. Stallen Smith & Co
C. P. Smith Electrical Engineers Date *26-3-03.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *about 160 feet*

Distance between dynamo or electric motors and steering compass *" 160 feet*

The nearest cables to the compasses are as follows:—

A cable carrying <i>35</i> Amperes <i>at 2.5</i> feet from standard compass <i>at 32</i> feet from steering compass <i>7 ft with wire</i>
A cable carrying <i>23</i> Amperes <i>"</i> feet from standard compass <i>"</i> feet from steering compass <i>"</i>
A cable carrying <i>16</i> Amperes <i>"</i> feet from standard compass <i>"</i> feet from steering compass <i>"</i>

Note: all wiring forward of + in vicinity of compasses double wired.

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 *every* course in the case of the standard compass and *nil* degrees on *every* course in the case of the steering compass.

For Harland & Wolff Ltd
C. P. Smith Builder's Signature. Date

GENERAL REMARKS.

This installation is of good description throughout and has been fitted in accordance with the Rules.
R. J. Severin
 Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

It is submitted that this installation appears to meet the Rule requirements.
 Lloyd's Register Foundation
 11.4.03

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 14.