

REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 4894

Port of *Belfast* Date of First Survey *1st Aug 1898* Date of Last Survey *31st Aug 1898* of Visits *5*
 No. in Reg. Book *on the Iron or Steel* *Ray State* belonging to
 Built at *Belfast* By whom *Harland & Wolff L^{ds}* When built *1898*
 Owners *White Diamond S. Coy. Ltd* Owners' Address *Liverpool*
 Yard No. *321* Electric Light Installation fitted by *H. H. Allen Sons & Co* When fitted *1898*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 of W. A. Allen Sons & Co's Patent compound wound dynamos coupled direct to
2 of their vertical type double acting single cylinder engines.
 Capacity of Dynamo *110* Amperes at *62* Volts, whether continuous or alternating current *continuous*
 Where is Dynamo fixed *Between thrusts of main engines.*
 Position of Main Switch Board *Forward bulkhead* 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
 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 *main fuses of tinned copper* *tin* 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 slate & porcelain*
 Total number of lights provided for *211* arranged in the following groups:—

A	<i>69</i>	lights each of <i>3 of 32</i>	<i>66 of 16</i>	candle power requiring a total current of	<i>72</i>	Amperes
B	<i>46</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>46</i>	Amperes
C	<i>32</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>32</i>	Amperes
D	<i>45</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>45</i>	Amperes
E	<i>1819</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>1819</i>	Amperes
1	Mast head light with	1 lamps each of	<i>32</i>	candle power requiring a total current of	<i>2</i>	Amperes
2	Side light with	1 lamps each of	<i>32</i>	candle power requiring a total current of	<i>4</i>	Amperes
4	Cargo lights of	<i>128</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 *Whirlhouse on Bridge*

DESCRIPTION OF CABLES.

Main cable carrying	<i>110</i>	Amperes, comprised of	<i>37</i>	wires, each	<i>16</i>	L.S.G. diameter,	<i>.119</i>	square inches total sectional area
Branch cables carrying	<i>69</i>	Amperes, comprised of	<i>19</i>	wires, each	<i>16</i>	L.S.G. diameter,	<i>.0612</i>	square inches total sectional area
Branch cables carrying	<i>32</i>	Amperes, comprised of	<i>19</i>	wires, each	<i>18</i>	L.S.G. diameter,	<i>.0344</i>	square inches total sectional area
Leads to lamps carrying	<i>1</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>16</i>	L.S.G. diameter,	<i>.0032</i>	square inches total sectional area
Cargo light cables carrying	<i>4</i>	Amperes, comprised of	<i>145</i>	wires, each	<i>38</i>	L.S.G. diameter,	<i>.0041</i>	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables are either protected in wood casing or are sheathed with lead and galvanized steel wire. The insulation is of pure Para Rubber. Vulcanizing rubber.
 J. R. proofed tape the whole vulcanized together. finally braided & compounded.
 Joints in cables, how made, insulated, and protected *Wires are twisted as required soldered and re-insulated with pure Para rubber. felt tape. oxford tape. the whole being covered with insulating varnish.*

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 *they are all accessible*
 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 *Mains leave switchboard passing up engine room bulkhead to the various decks terminating each in distributing boxes and are led from thence to the various lights in strong wood casing.*

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *generally although certain mains are taken through cargo spaces on main deck.*
 What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture
strong wood casing protected by the cross beams.
 What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *strong wood casing.*
 What special protection has been provided for the cables near boiler casings *lead sheathed and armoured cables.*
 What special protection has been provided for the cables in engine room *as in boiler room.*
 How are cables carried through beams *holes are banded with fibre through bulkheads, &c. bulkhead glands.*
 How are cables carried through decks *g.i. duck pipes made watertight.*
 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 *strong wood casing run in channel-iron*
 Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *yes. — on Gunter Rack*
 If so, how are the lamp fittings and cable terminals specially protected *Strong Cast Iron Hinged Covers.*
 Where are the main switches and cut outs for these lights fitted *Outside of these spaces*
 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 *W. H. Allen, Son & Co's Coupler.*
 In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *bolted to field magnets.*
 How are the returns from the lamps connected to the hull *soldered to $\frac{3}{8}$ brass earth screws tapped into the iron*
 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 *yes* supplied with a voltmeter? and *—* an amperemeter, fixed *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 *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.

For W. H. ALLEN, SON & Compy.

Electrical Engineers

Date *Aug 31st /98*

COMPASSES.

R. A. Adams.

Distance between dynamo or electric motors and standard compass *112 Feet.*
 Distance between dynamo or electric motors and steering compass *106 Feet.*
 The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>1</i>	<i>1</i>	<i>4</i>	<i>6</i>
<i>12</i>	<i>8</i>	<i>6</i>	<i>6</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 *nil* degrees on *all* course in the case of the standard compass and *nil* degrees on *all* course in the case of the steering compass.

Harland & Wolff St. Builder's Signature. Date *2 Sept 1898*

GENERAL REMARKS.

This installation appears to be of good description and fitted in accordance with the Rules of this Society

R. J. Benson

Surveyor to Lloyd's Register of British and Foreign Shipping

Committee's Minute

It is submitted that this installation appears to be in accordance with the Rules

so aly said

Lloyd's Register Foundation
 10.9.98

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.