

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 22033

Port of Glasgow Date of First Survey 3rd Aug: 04 Date of Last Survey 12th Aug: 04 No. of Visits 5
 No. in Reg. Book on the Iron or Steel S. S. "Emerald" Port belonging to X
 Built at Port Glasgow By whom A. Rodger & Co (No 379) When built 1904
 Owners X Owners' Address X
 Yard No. 379 Electric Light Installation fitted by James Espie When fitted 1904

DESCRIPTION OF DYNAMO, ENGINE, ETC.

5½' x 5' Vertical Engine, coupled direct to Compound wound dynamo
Running at 400 Rev. per min.
 Capacity of Dynamo 43 Amperes at 80 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed Engine Room
 Position of Main Switch Board Engine Room having switches to groups A. B. C. D. of lights, &c., as below
 Positions of auxiliary ~~switch~~ boards and ~~number of switches~~ Forecastle, Captain's Room, Chart Room, Engineers Room Aft. branch switches are fixed in convenient positions for each light
 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 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 fifty two arranged in the following groups:—
 A Forward 14 lights each of 16 candle power requiring a total current of 9.8 Amperes
 B Cargo Lights 16 lights each of 16 candle power requiring a total current of 12.8 Amperes
 C Engine Room 10 lights each of 16 candle power requiring a total current of 7 Amperes
 D Aft. 8 lights each of 16 candle power requiring a total current of 5.6 Amperes
 E lights each of 16 candle power requiring a total current of Amperes
Two Mast head light with one lamps each of 32 candle power requiring a total current of 2.8 Amperes
Two Side light with one lamps each of 32 candle power requiring a total current of 2.8 Amperes
Two Cargo lights of eight lamps each. 16 candle power, whether incandescent or arc lights incandescent

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

Where are the switches controlling the masthead and side lights placed Chart Room

DESCRIPTION OF CABLES.

Main cable carrying	<u>39</u> Amperes, comprised of	<u>19</u> wires, each	<u>18</u> L.S.G. diameter,	<u>.0351</u> square inches total sectional area
Branch cables carrying	<u>15</u> Amperes, comprised of	<u>7</u> wires, each	<u>16</u> L.S.G. diameter,	<u>.0225</u> square inches total sectional area
Branch cables carrying	<u>11.2</u> Amperes, comprised of	<u>7</u> wires, each	<u>18</u> L.S.G. diameter,	<u>.0127</u> square inches total sectional area
Leads to lamps carrying	<u>7</u> Amperes, comprised of	<u>3</u> wires, each	<u>20</u> L.S.G. diameter,	<u>.0030</u> square inches total sectional area
Cargo light cables carrying	<u>5.6</u> Amperes, comprised of	<u>30</u> wires, each	<u>26</u> L.S.G. diameter,	<u>.0076</u> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

pure vulcanized indiarubber, tapes, braided, 600 meg ohm quality, with galvanized iron wire covering in cabins, berths, etc. and screwed malleable iron tubing in Hold and Engine Room

Joints in cables, how made, insulated, and protected the solder, resin used as flux

Covered with pure rubber and adhesive tape, made waterproof

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

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 along ship side, through Hold, in screwed iron tubing

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *yes, except Hold and Coal bunkers*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *screwed iron tubing*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *screwed iron tubing*

What special protection has been provided for the cables near boiler casings *iron tubing, or armoured wiring*

What special protection has been provided for the cables in engine room *iron tubing and armoured wiring*

How are cables carried through beams *iron tubing* through bulkheads, &c. *iron tubing*

How are cables carried through decks *yes - iron tubing standing at least 12' above deck*

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

If so, how are they protected *screwed iron tubing*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *no*

If so, how are the lamp fittings and cable terminals specially protected *none*

Where are the main switches and cut outs for these lights fitted *—*

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 *—*

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

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 *also* supplied with a voltmeter *and* *an ammeter*, fixed *Engine Room*

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.

James Esie

Electrical Engineers

Date *31st Aug. 1904*

COMPASSES.

Distance between dynamo or electric motors and standard compass *20 feet*

Distance between dynamo or electric motors and steering compass *100 feet*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>39</i> Amperes	<i>20</i> feet from standard compass	<i>100</i> feet from steering compass
A cable carrying	<i>15</i> Amperes	<i>20</i> feet from standard compass	<i>30</i> feet from steering compass
A cable carrying	<i>7</i> Amperes	<i>5</i> feet from standard compass	<i>— 6 inches</i> 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 *0* degrees on *0* course in the case of the standard compass and *0* degrees on *0* course in the case of the steering compass.

Arthur H. Jones

Builder's Signature.

Date *1st Sept 1904*

GENERAL REMARKS.

The installation is well fitted & worked satisfactorily on trial

Arthur H. Jones

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

Committee's Minute *Glasgow 10 SEP 1904*

Record "Electric Light."

It is submitted that this installation appears to be satisfactory.

Wm.