

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 24274

Port of Glasgow Date of First Survey 26 July Date of Last Survey 9 Aug No. of Visits 5
 No. in Reg. Book on the Iron or Steel S.S. "Arrius" Port belonging to
 Built at Partick By whom W. W. Henderson & Co. Ltd. When built 1906
 Owners Messrs Bethel Gwyn & Co. Owners' Address London
 Yard No. 452 Electric Light Installation fitted by Clarke Chapman & Co. Ltd. When fitted 1906

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One single cylinder double acting engine open type, direct coupled to a continuous current compound wound dynamo
 Capacity of Dynamo 120 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed Engine room, bottom platform Whether single or double wire system is used Double
 Position of Main Switch Board Near dynamo 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 Each light or group of lights provided with switches as required
 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 slate & antimony
 Total number of lights provided for 155 arranged in the following groups:—

A	<u>37</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>14.2</u>	Amperes
B	<u>22</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>13.2</u>	Amperes
C	<u>18</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>10.8</u>	Amperes
D	<u>30</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>18</u>	Amperes
E	<u>32</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>14.2</u>	Amperes
F	<u>21</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>12.6</u>	Amperes
<u>2</u>	Mast head light with	<u>1</u> lamps each of	<u>32</u>	candle power requiring a total current of	<u>1.2</u>	Amperes
<u>2</u>	Side light with	<u>1</u> lamps each of	<u>32</u>	candle power requiring a total current of	<u>1.2</u>	Amperes
<u>10</u>	Cargo lights of	<u>5</u> <u>16</u>	candle power, whether incandescent or arc lights	<u>incandescent</u>		

 If arc lights, what protection is provided against fire, sparks, &c. none fitted

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

DESCRIPTION OF CABLES.

Main cable carrying	<u>93</u>	Amperes, comprised of	<u>19</u>	wires, each	<u>13</u>	L.S.G. diameter, <u>.1249</u>	square inches total sectional area
Branch cables carrying	<u>14.2</u>	Amperes, comprised of	<u>7</u>	wires, each	<u>16</u>	L.S.G. diameter, <u>.0722</u>	square inches total sectional area
Branch cables carrying	<u>10.8</u>	Amperes, comprised of	<u>7</u>	wires, each	<u>18</u>	L.S.G. diameter, <u>.0125</u>	square inches total sectional area
Leads to lamps carrying	<u>.6</u>	Amperes, comprised of	<u>1</u>	wires, each	<u>16</u>	L.S.G. diameter, <u>.0032</u>	square inches total sectional area
Cargo light cables carrying	<u>3</u>	Amperes, comprised of	<u>146</u>	wires, each	<u>38</u>	L.S.G. diameter, <u>.00504</u>	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Vulcanized rubber, taped and braided, and lead covered overall, where exposed steel armouring over the lead covering.
 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 Lead covered and steel armoured, secured by brass & w. l. clips close up to deck.

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 *Lead covered and armoured*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Lead covered & armoured*

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

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

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

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

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 *Lead covered & armoured secured by brass clips*

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 *—*

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 Watertight Cl. Boxes*

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 *—*

The installation is *now* supplied with a voltmeter and *—* ~~an amperemeter~~ fixed *Main Switchboard*

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 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 Clarke, Chapman & Co., Ltd.

J. D. Walker

Director.

Electrical Engineers

Date *Sept. 6th 1906.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *112 feet.*

Distance between dynamo or electric motors and steering compass *104 .*

The nearest cables to the compasses are as follows:—

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

DAVID & WILLIAM HENDERSON & CO., LIMITED

J. D. Henderson

Builder's Signature.

Date

7th Sept 1906

GENERAL REMARKS.

This installation has been well fitted on board and when run working under ordinary conditions was satisfactory.

A. McKeand

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

Committee's Minute

Glasgow 7 6 SEP 1906

Record Electric Light.

It is submitted that the Record Elec. Light be noted in the Reg. Books.

27.9.06

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.