

WED. - 4 APR. 1917

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 17126.

Port of *Glasgow*Date of First Survey *15.1.17*; Date of Last Survey *13.3.17*; No. of Visits *14*.No. in  
Reg. Bookon the ~~Iron~~ Steel*"S.S. Clan Ranald"*Port belonging to *Glasgow*

Built at

*Glasgow*

By whom

*Kaplan & Miller*When built *1917*

Owners

*Clyde Iron Works*

Owners' Address

*Glasgow*

Yard No.

*199*

Electric Light Installation fitted by

*The Sunderland Forge & Eng. Co. Ltd*When fitted *1917*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

*One combined plant consisting of open type inverted engine 10"x8"-200 revs - 100 lbs steam coupled to compound wound multipolar dynamo.*

Capacity of Dynamo

*277*

Amperes at

*65*Volts, whether continuous or alternating current *continuous*

Dynamo fixed

*Eng. Rm. Harbourside Bottom Platform*

Whether single or double wire system is used

*double*

Position of Main Switch Board

*close to dynamo*

having switches to groups

*six*

of lights, &amp;c., as below

*Positions of auxiliary switch boards and numbers of switches on each in Chartroom with switches controlling Mainmast, Foremast, Side Lights - compasses & Telemotor Standard light*

Fuses 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*

Fuses are fitted on the double wire system are fuses fitted to both flow and return wires or cables of all circuits including lamp circuits

the fuses of non-oxidisable metal

*Yes*

and constructed to fuse at an excess of

*100*

per cent over the normal current

All fuses fitted in easily accessible positions

*Yes*

Are the fuses of standard dimensions

*No*

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*

All switches and fuses constructed of incombustible materials and fitted on incombustible bases

*Yes*Number of lights provided for = *158 @ 16 c.p.* arranged in the following groups:—

<i>32 @ 10 c.p.</i>	lights each of <i>28 @ 16 c.p.</i>	<i>2 @ 32</i>	candle power requiring a total current of	<i>27.6</i>	Amperes
<i>Engineers 34</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>29.3</i>	Amperes
<i>Eng. Room 27</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>23.2</i>	Amperes
<i>Room No. 65</i>	lights each of <i>55 @ 16 c.p.</i>	<i>5 @ 32</i>	candle power requiring a total current of	<i>56.0</i>	Amperes
<i>Projector</i>	lights each of	<i>=</i>	candle power requiring a total current of	<i>60</i>	Amperes
<i>Wireless</i>	lights each of	<i>=</i>	candle power requiring a total current of	<i>25</i>	Amperes
<i>Mainmast head light with 1</i>	lamps each of	<i>32</i>	candle power requiring a total current of	<i>3.44</i>	Amperes
<i>Side light with 1</i>	lamps each of	<i>32</i>	candle power requiring a total current of	<i>3.44</i>	Amperes
<i>5</i>	Cargo lights of	<i>6 @ 16</i>	candle power, whether incandescent or arc lights	<i>incandescent</i>	

lights, what protection is provided against fire, sparks, &c. *Two 15 amp Arc lamps fitted**enclosed in hexagonal glazed lanterns*Where are the switches controlling the masthead and side lights placed *Chartroom*

## SECTION OF CABLES.

able carrying <i>277</i>	Amperes, comprised of <i>2 x 37</i> wires, each	<i>14 see Enk. Lk. 7/4/17. 372</i>	S.W.G. diameter,	<i>100</i>	square inches total sectional area
cables carrying <i>56.0</i>	Amperes, comprised of <i>19</i> wires, each	<i>16</i>	S.W.G. diameter,	<i>060</i>	square inches total sectional area
cables carrying <i>29.3</i>	Amperes, comprised of <i>19</i> wires, each	<i>18</i>	S.W.G. diameter,	<i>034</i>	square inches total sectional area
lamps carrying <i>3.5</i>	Amperes, comprised of <i>7</i> wires, each	<i>25</i>	S.W.G. diameter,	<i>0022</i>	square inches total sectional area
ht cables carrying <i>5.2</i>	Amperes, comprised of <i>7</i> wires, each	<i>21 1/2</i>	S.W.G. diameter,	<i>0049</i>	square inches total sectional area

## SECTION OF INSULATION, PROTECTION, ETC.

*Vulc. I.R., Taped, Vulc., Braided & compounded**Mains run in Iron pipe**Branch wiring in wood casing*Cables, how made, insulated, and protected *None*Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances *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 *in Iron pipe*

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**DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.**

Are they in places always accessible

*Yes*

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

*Iron pipe*

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

*wood casing*

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

*iron pipe*

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

*iron pipe & wood casing*

How are cables carried through beams

*holes bushed with fibre*

through bulkheads, &c.

*W.G. Glands* ✓

How are cables carried through decks

*W.G. 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

*Iron pipe*

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 fuses for these lights fitted

—

If in the spaces, how are they specially protected

—

Are any switches or fuses 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

—

How are the returns from the lamps connected to the hull

—

Are all the joints with the hull in accessible positions

—

Is the installation supplied with a voltmeter

*Yes*

and with an amperemeter

*Yes*

*fixed on Main S'board*

**VESSELS BUILT FOR CARRYING PETROLEUM.**

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas

Are any switches, fuses, 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 not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than 600 megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

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.

**P. PRO THE SUNDERLAND FORGE & ENGINEERING CO., LTD.**

Electrical Engineers

Date *Mar 21<sup>st</sup> 1917*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *Director about 100 feet*

Distance between dynamo or electric motors and steering compass *about 96 feet*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>86</i>	Amperes	<i>led into</i>	feet from standard compass	<i>about 7</i>	feet from steering compass
A cable carrying	<i>92</i>	Amperes	<i>about 7</i>	feet from standard compass	<i>led into</i>	feet from steering compass
A cable carrying	<i>12.9</i>	Amperes	<i>10</i>	feet from standard compass	<i>8</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

degrees on

course in the case of the

standard compass and

degrees on

course in the case of the steering compass.

*For Napier Miller & Co. Joseph Miller*  
*Director*

Builder's Signature.

Date

*26<sup>th</sup> March 1917*

**GENERAL REMARKS.**

*The fitting of the wires in this vessel are as stated in this report and appear to be in accordance with the Committee's requirements*

*James Jones*

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

Committee's Minute **GLASGOW.**

**3 - APR. 1917**

*Elec. Light.*

*W.*



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