

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 14126.

Port of Glasgow Date of First Survey 15.1.17; Date of Last Survey 13.3.17; No. of Visits 14.
 No. in Reg. Book on the ~~Iron~~ Steel "S. Clan Ranald" Port belonging to Glasgow
 Built at Glasgow By whom Kaplan & Miller When built 1917
 Owners Cayzer & Irvine & Co 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" x 8" - 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

Where is Dynamo fixed Eng. Rm. Starbidside 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, &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 on the double wire system are fuses fitted to both flow and return wires or cables of all circuits including lamp circuits Yes

Are the fuses of non-oxidisable metal Yes and constructed to fuse at an excess of 100 per cent over the normal current

Are 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

Are 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 :-

32 @ 10 c.p.	lights each of 28 @ 16 c.p.	2 @ 32 candle power requiring a total current of	27.6	Amperes
Engineers 34	lights each of 16	candle power requiring a total current of	29.3	Amperes
Eng. Room 27	lights each of 16	candle power requiring a total current of	25.2	Amperes
Room & Nav 65	lights each of 55 @ 16 c.p. 5 @ 32	candle power requiring a total current of	56.0	Amperes
Projector	lights each of =	candle power requiring a total current of	60	Amperes
Wireless				
1	Main head light with 1 lamps each of 32	candle power requiring a total current of	3.44	Amperes
2	Side light with 1 lamps each of 32	candle power requiring a total current of	3.44	Amperes
5	Cargo lights of 6 - @ 16	candle power, whether incandescent or arc lights	incandescent	

lights, what protection is provided against fire, sparks, &c. Two 15 amp Arc lamps fitted and enclosed in hexagonal glazed lanterns

Where are the switches controlling the masthead and side lights placed Chartroom

SECTION OF CABLES.

Cable carrying 277 Amperes, comprised of 2 x 57 wires, each <u>14</u> S.W.G. diameter, <u>100</u> square inches total sectional area
Cables carrying 56.0 Amperes, comprised of 19 wires, each <u>16</u> S.W.G. diameter, <u>060</u> square inches total sectional area
Cables carrying 29.3 Amperes, comprised of 19 wires, each <u>18</u> S.W.G. diameter, <u>034</u> square inches total sectional area
Lamps carrying 3.5 Amperes, comprised of 7 wires, each <u>25</u> S.W.G. diameter, <u>0022</u> square inches total sectional area
Light cables carrying 5.2 Amperes, comprised of 7 wires, each <u>21 1/2</u> S.W.G. diameter, <u>0049</u> square inches total sectional area

SECTION OF INSULATION, PROTECTION, ETC.
 Type of Insulation Vulc. I.R., Taped, Vulc., Braided & compounded
 How are the cables run in Iron pipe
 How are the cables run in branch wiring in wood casing
 How are the 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



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.P. Glands ✓

How are cables carried through decks W.P. 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 Deck

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 21st 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	<u>86</u>	Amperes	<u>led into</u>	feet from standard compass	<u>about 7</u>	feet from steering compass
A cable carrying	<u>92</u>	Amperes	<u>about 7</u>	feet from standard compass	<u>led into</u>	feet from steering compass
A cable carrying	<u>12.9</u>	Amperes	<u>10</u>	feet from standard compass	<u>8</u>	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 Ltd Joseph Miller Builder's Signature. Date 26th 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.



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L.H.
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