

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 17838

Port of Glasgow. Date of First Survey 27.4.21 Date of Last Survey 14.6.21 No. of Visits 8
 No. in on the Iron or Steel S.S. CLAN MACIVER Port belonging to Glasgow.
 Reg. Book 12493 Built at Port Glasgow. By whom Lithgows Limited When built 1921.
 Owners The Clan Line Steamers Co. Owners' Address Glasgow.
 Yard No. 737. Electric Light Installation fitted by The Sunderland Forge & Eng. Co. Ltd. When fitted 1921

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Vertical Double acting Engine coupled to multi-pole compound wound Dynamo
10 KW.

Capacity of Dynamo 100 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Just below Main Engine Room. Whether single or double wire system is used Double

Position of Main Switch Board Inside Seaform Main Engine Room having switches to groups 6 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each In chart room with 10 switches controlling
Masthead, Mainmast, Port, Starboard Stern lights, compasses, Telegraphs, search lamp.

If 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

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

Are the fuses of non-oxidizable 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

Total number of lights provided for 194 1/2 / 2164 arranged in the following groups:—

A <u>Engine Room</u> <u>14 1/2</u> lights each of <u>16</u>	candle power requiring a total current of <u>29.7</u>	Amperes
B <u>Saloon & Steward's</u> <u>2</u> lights each of <u>16</u>	candle power requiring a total current of <u>25.2</u>	Amperes
C <u>Living Room</u> <u>16</u> lights each of <u>16</u>	candle power requiring a total current of <u>9.6</u>	Amperes
D <u>Engine Room</u> <u>27</u> lights each of <u>16</u>	candle power requiring a total current of <u>16.2</u>	Amperes
E <u>Wireless</u> lights each of <u>—</u>	candle power requiring a total current of <u>30.0</u>	Amperes
F <u>Searchlight</u> lights each of <u>—</u>	candle power requiring a total current of <u>60.0</u>	Amperes
<u>2</u> Mast head lights with <u>1</u> lamp each of <u>32</u>	candle power requiring a total current of <u>1.2</u>	Amperes
<u>2</u> Side lights with <u>1</u> lamp each of <u>32</u>	candle power requiring a total current of <u>1.2</u>	Amperes
<u>5</u> Cargo lights of <u>6 - 16 90</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 with indicator

DESCRIPTION OF CABLES.

Main cable carrying <u>100</u> Amperes, comprised of <u>19</u> wires, each <u>15</u> S.W.G. diameter, <u>.0750</u> square inches total sectional area
Branch cables carrying <u>29.7</u> Amperes, comprised of <u>19</u> wires, each <u>18</u> S.W.G. diameter, <u>.0338</u> square inches total sectional area
Branch cables carrying <u>25.2</u> Amperes, comprised of <u>7</u> wires, each <u>16</u> S.W.G. diameter, <u>.0221</u> square inches total sectional area
Leads to lamps carrying <u>8</u> Amperes, comprised of <u>3</u> wires, each <u>22</u> S.W.G. diameter, <u>.0018</u> square inches total sectional area
Cargo light cables carrying <u>3.6</u> Amperes, comprised of <u>7</u> wires, each <u>21 1/2</u> S.W.G. diameter, <u>.0049</u> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Accommodation:—Pulley runs, rollers, Japans & Braided canvas in wood casing
Engine Room:— " " " " " " Steel tubes

Joints in cables, how made, insulated, and protected None made

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances — 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 —

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 Covered in steel tubes



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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 *cannet in Steel tubes or wood casing as required*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *cannet in Steel tubes*

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 *Washed with Fibre* through bulkheads, &c. *continuous steel tubes*

How are cables carried through decks *W/T 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 *cannet in Steel tubes*

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 switch*

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 *Yes*

Are any switches, fuses, or joints of cables fitted in the pump room or companion *Yes*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *Yes*

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 *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

Wm. J. Rankin Electrical Engineers Secretary.

Date 4th July 1921.

COMPASSES.

Distance between dynamo or electric motors and standard compass *124 feet*

Distance between dynamo or electric motors and steering compass *128 feet*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	Distance from standard compass	Distance from steering compass
6	7	6 feet	6 feet
9.6	7	6 feet	6 feet
7.5	10	10 feet	10 feet

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.

LITHGOWS LIMITED.

Wm. J. Rankin Director & Secretary

Builder's Signature: Date 18 July 1921.

GENERAL REMARKS.

This installation has been fitted on board under special survey. Tested under full working conditions found satisfactory.

It is submitted that this vessel is fit for service. C. E. Light Ref. 28/7/21
FEE. 110.0.0. Rendered 22/7/21

J. B. Rankin, W. Lane
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 26 JUL 1921

Elec. Lights.



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