

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 4007.

Port of Göteborg Date of First Survey 4th Decemr 1917 Date of Last Survey 20th June 1918 No. of Visits 10
 No. in on the Iron or Steel M. S. Bullaren Port belonging to Göteborg
 Reg. Book 56 Built at Göteborg By whom Allmänna Elektriska A.B. When built 1918
 Owners Rederiaktiel. Transatlantic Owners' Address Göteborg
 Yard No. 344 Electric Light Installation fitted by Luth & Roséns Elektriska A.B. When fitted 1918

DESCRIPTION OF DYNAMO, ENGINE, ETC.

continuous to continuous current converter - this converter is not delivered by us, but from the "Allmänna Svenska Elektriska A.B.", Vesterås, Sweden

Capacity of Dynamo 180 Amperes at 110/115 Volts, whether continuous or alternating current continuous
 Where is Dynamo fixed in the engine-room Whether single or double wire system is used double wire
 Position of Main Switch Board in the engine-room having switches to groups 5 of lights, &c., as below
fuses fuses
 Positions of auxiliary switch boards and numbers of switches on each one in the after-accommodation, one in the
midships-accommodation, one in the saloon-pantry, one in the chart-room and one in the
head-eccommodation

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 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 ---

Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 375 arranged in the following groups:—

A	<u>36</u>	lights each of	<u>16-50</u>	candle power requiring a total current of	<u>11</u>	Amperes
B	<u>57</u>	lights each of	<u>16-50</u>	candle power requiring a total current of	<u>18</u>	Amperes
C	<u>69</u>	lights each of	<u>16-50</u>	candle power requiring a total current of	<u>21</u>	Amperes
D	<u>5</u>	lights each of	<u>32</u>	candle power requiring a total current of	<u>5</u>	Amperes
E	<u>26</u>	lights each of	<u>16-50</u>	candle power requiring a total current of	<u>8</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>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>2</u>	Amperes
<u>24</u>	Cargo lights of	<u>250</u>	candle power, whether incandescent or arc lights	<u>incandescent</u>		

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

Where are the switches controlling the masthead and side lights placed in the chart-room

DESCRIPTION OF CABLES.

Main cable carrying	<u>180</u>	Amperes, comprised of	<u>19</u>	wires, each	S.W.G. diameter, <u>2.17</u>	square inches total sectional area
Branch cables carrying	<u>40</u>	Amperes, comprised of	<u>7</u>	wires, each	S.W.G. diameter, <u>1.35</u>	square inches total sectional area
Branch cables carrying	<u>20</u>	Amperes, comprised of	<u>7</u>	wires, each	S.W.G. diameter, <u>0.86</u>	square inches total sectional area
Leads to lamps carrying	<u>10</u>	Amperes, comprised of	<u>7</u>	wires, each	S.W.G. diameter, <u>0.52</u>	square inches total sectional area
Cargo light cables carrying	<u>15</u>	Amperes, comprised of	<u>7</u>	wires, each	S.W.G. diameter, <u>0.67</u>	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

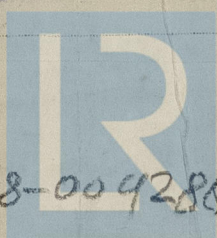
Cables are insulated by pure, vulcanised rubber, lead armour covered with paper and rubber tape. Protected by iron wire and coated with red lead. In accommodations pure vulcanised rubber, lead armoured.

Joints in cables, how made, insulated, and protected water-tight iron-boxes

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 steel-tubes, iron-casings.



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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 **armouring as above**
protected by iron wire

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

What special protection has been provided for the cables near boiler casings **armouring as above**

What special protection has been provided for the cables in engine room **armouring as above**

How are cables carried through beams **armouring as above** through bulkheads, &c. **water-tight boxes**

How are cables carried through decks **in iron pipes and water-tight boxes**

Are any cables run through coal bunkers **no** or cargo spaces **no** or spaces which may be used for carrying cargo, stores, or baggage **yes**

If so, how are they protected **armouring as above**

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage **yes**

If so, how are the lamp fittings and cable terminals specially protected **with iron cases**

Where are the main switches and fuses for these lights fitted **in the engine-room**

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 **terminals securely protected**

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 switchboard**

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 **1000** megohms per **kilometre at 15° Celsius** or **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.

Luth & Roséns Elektriska A.B., Stockholm

Electrical Engineers

Date **16th August 1918**

COMPASSES.

Distance between dynamo or electric motors and standard compass **engine-room to flying bridge**

Distance between dynamo or electric motors and steering compass **engine-room to flying bridge**

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
A cable carrying	Amperes	feet from standard compass	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

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.

Builder's Signature. Date

GENERAL REMARKS.

This electric lighting installation has been fitted on board under my inspection and has been tested and found satisfactory. All rule requirements have been complied with.

It is submitted that this vessel is eligible for THE RECORD.

ELEC. LIGHT
10-10-18

V. Nilou
Surveyor to Lloyd's Register of Shipping.

Committee's Minute