

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 73.

Port of Malmo Date of First Survey 23rd April 19 Date of Last Survey 3rd May 19 No. of Visits 3
 No. in Reg. Book on the ~~Iron~~ Steel S. S. "Ellwiron" Port belonging to Ljusne
 Built at Malmo By whom Rockums Mek Verkstads AB When built 1919-5 mo.
 Owners Ljusne - Uoona Aktiebolag Owners' Address Ljusne
 Yard No. 134 Electric Light Installation fitted by Luth & Rosins Elektriska Aktiebolag When fitted April 1919

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Steam turbine of 10 H.P. with shunt wound direct current generator.

Capacity of Dynamo 60 Amperes at 110 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed in engine room

Whether single or double wire system is used double wire

Position of Main Switch Board the engine room having switches to groups 7 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each one (A) of 3 groups midships astern, one (B) of 4 groups midships forward, one (C) of 2 groups fore-castle, one (D) of 5 groups in navigation house. One (E) of 5 groups in the engine room (Main Switch Board)

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 yes
 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 yes

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

Total number of lights provided for 102 arranged in the following groups:—

A	<u>19</u>	lights each of <u>16</u>	candle power requiring a total current of <u>4</u> Amperes
B	<u>27</u>	lights each of <u>16</u>	candle power requiring a total current of <u>5</u> Amperes
C	<u>10</u>	lights each of <u>16</u>	candle power requiring a total current of <u>2</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>41</u>	lights each of <u>16-25</u>	candle power requiring a total current of <u>11</u> Amperes
<u>2</u>	Mast head light with <u>1</u> lamp 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> lamp each of <u>32</u>	candle power requiring a total current of <u>2</u> Amperes	
<u>4</u>	Cargo lights of <u>500</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 chart house passage

DESCRIPTION OF CABLES.

Main cable carrying 60 Amperes, comprised of 7 wires, each 2.12 mm S.W.G. diameter, 0.039 square inches total sectional area
 Branch cables carrying 9 Amperes, comprised of 7 wires, each 0.67 mm S.W.G. diameter, 0.0039 square inches total sectional area
 Branch cables carrying 2 Amperes, comprised of 7 wires, each 0.67 mm S.W.G. diameter, 0.0039 square inches total sectional area
 Leads to lamps carrying 2 Amperes, comprised of 7 wires, each 0.52 mm S.W.G. diameter, 0.0023 square inches total sectional area
 Cargo light cables carrying 2.5 Amperes, comprised of 7 wires, each 0.67 mm S.W.G. diameter, 0.0039 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

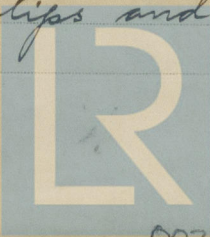
Vulcanized india-rubber tape, lead armouring and further where required tape and steel wire armouring.

Joints in cables, how made, insulated, and protected Watertight iron or metal joint 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 secured by screw clips and protected by iron tubes where required.



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 *Lead armouring and steel wire armouring.*

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

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

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

How are cables carried through beams *protected by steel wire armouring through bulkheads, &c. protected by boxes.*

How are cables carried through decks *Through iron tubes.*

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

If so, how are they protected *Steel wire armouring and iron tubes where required*

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

If so, how are the lamp fittings and cable terminals specially protected *by watertight metal or iron boxes.*

Where are the main switches and fuses for these lights fitted *In saloon passage ways.*

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 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 *1000* megohms per *kilometer* 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 & ROSEN'S ELEKTRISKA AKTIEBOLAG

Axel Hultman

Electrical Engineers

Date *May 1919.*

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
<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>
<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>
<i>✓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>

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 *all* degrees on *all* course in the case of the standard compass and *all* course in the case of the steering compass.

KOCKUMS MEKANISKA VERKSTADS AKTIE-BOLAG

Builder's Signature.

Date *16-5-19*

GENERAL REMARKS.

This electric lighting installation is in my opinion in accordance with the requirements of the Rules, workmanship and materials being good and it is recommended that a record of "Elec. light" be made in the Register Book in the case of this vessel. It is submitted that this vessel is eligible for THE RECORD. Elec light.

Fees Kr. 100:- received

Surveyor to Lloyd's Register of Shipping.

Committee's Minute' FRI 20 JUN. 1919

FRI SEP. 3 1920



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.