

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 17

Port of *Duluth, Minn.* Date of First Survey *Apr. 3rd* Date of Last Survey *Oct. 4th* No. of Visits *10*
 No. in Reg. Book on the ~~Steel~~ *Crew Steamer "Lake Indian"* Port belonging to *Duluth, Minn.*
 Built at *Duluth, Minn.* By whom *M. J. Duggall Duluth Co.* When built *1918*
 Owners *U. S. S. Board. Emergency Fleet Corp.* Owners' Address *Washington D. C.*
 Yard No. *9* Electric Light Installation fitted by *M. J. Duggall Duluth Co.* When fitted *1918*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One Generating set 7 1/2 H.P. directly connected to an American Blower engine 5' x 5' x 550 H.P.

Capacity of Dynamo *60* Amperes at *115* Volts, whether continuous or alternating current *Continuous*
 Where is Dynamo fixed *Starboard side of engine room* Whether single or double wire system is used *double*
 Position of Main Switch Board *Eng. room* having switches to groups of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *one in Starboard alleyway Captain's Quarters, one in Galley*
one in Crews quarters each with 5 switches

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 *10* 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 arranged in the following groups:—

A Captain's Quarters <i>4</i> lights each of <i>25</i>	<i>Watts</i> candle power requiring a total current of <i>2.6</i> Amperes
B Galley <i>47</i> lights each of <i>25</i>	candle power requiring a total current of <i>10.2</i> Amperes
C Crews Quarters <i>18</i> lights each of <i>25</i>	candle power requiring a total current of <i>3.9</i> Amperes
D Eng. & Blr room <i>30</i> lights each of <i>40</i>	candle power requiring a total current of <i>11.5</i> Amperes
E Fore deck <i>8</i> lights each of <i>40</i>	candle power requiring a total current of <i>2.8</i> Amperes
2 Mast head light with <i>1</i> lamps each of <i>60</i>	candle power requiring a total current of <i>1.1</i> Amperes
2 Side light with <i>1</i> lamps each of <i>60</i>	candle power requiring a total current of <i>1.1</i> Amperes
16 Cargo lights of <i>40</i>	candle power, whether incandescent or arc lights <i>Incandescent</i>

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

Where are the switches controlling the masthead and side lights placed *Chart. room*

DESCRIPTION OF CABLES.

Main cable carrying	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area
<i>60</i>	<i>1</i>	<i>2</i>	<i>B & S. 66370</i>	<i>Circular Mils</i>
Branch cables carrying <i>30</i>	<i>1</i>	<i>8</i>	<i>S.W.G. diameter, 16510</i>	square inches total sectional area
Branch cables carrying <i>25</i>	<i>1</i>	<i>10</i>	<i>S.W.G. diameter, 10380</i>	square inches total sectional area
Leads to lamps carrying <i>12</i>	<i>1</i>	<i>14</i>	<i>S.W.G. diameter, 4107</i>	square inches total sectional area
Cargo light cables carrying <i>12</i>	<i>1</i>	<i>14</i>	<i>S.W.G. diameter, 4107</i>	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Vulcanised rubber, double braided, led through galvanized iron conduit. In cabins in wood moulding. All cables to specifications and lists of the National Board of Fire Underwriters

Joints in cables, how made, insulated, and protected *Soldered, rubbered and friction taped. In iron boxes where iron conduit is used*

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 *Galvanized iron conduit*



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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 *Conduit and W.T. fittings*

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

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 *Conduit* through bulkheads, &c. *Conduit and W.T. fittings*

How are cables carried through decks *Conduit and W.T. fittings*

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 *Conduit secured to deck beams*

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 *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 *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.

COMPASSES.

Distance between dynamo or electric motors and standard compass

Distance between dynamo or electric motors and steering compass

Electrical Engineers

Date

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
25	1.5	1.5	
25	1.5	1.5	

Have the compasses been adjusted with and without the electric installation at work at full power *No*

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.

GENERAL REMARKS.

The above installation has been fitted in a satisfactory manner and proved satisfactory under test.

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

Builder's Signature.

Date

Committee's Minute

Surveyor to Lloyd's Register of Shipping.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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