

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1425

Port of Montreal Date of First Survey Aug. 22. Date of Last Survey Sept. 29, 1919 No. of Visits 11  
 No. in Reg. Book on the ~~Iron~~ Steel "S. S. CANADIAN MILLER" Port belonging to Montreal  
 Built at Montreal By whom Canadian Vickers Ltd. When built 1919  
 Owners Canadian Government Merchant Marine Ltd. Owners' Address 260 St James St. Montreal  
 Yard No. 70 Electric Light Installation fitted by Builders When fitted 1919

**DESCRIPTION OF DYNAMO, ENGINE, ETC.**

One 10KW. semi-enclosed dynamo direct coupled to Goldie McCallum enclosed forced lubrication engine

Capacity of Dynamo 91 Amperes at 110 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed On top of store in engine room Whether single or double wire system is used Double  
 Position of Main Switch Board ditto. having switches to groups A-B-C-D-E of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each ✓

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 80-100 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 Carriage fuse used.  
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases Yes

Total number of lights provided for 175 arranged in the following groups :-

A Ford Accom.	68 lights each of 2-16cp. 4-15W. 5-25W. <sup>57-40W</sup>	candle power requiring a total current of	23.5 Amperes
B Aft "	34 lights each of 1-22cp. 1-16cp. 32-40W. <sup>5-40W</sup>	candle power requiring a total current of	12.25 Amperes
C Navigating.	23 lights each of 8-22cp. 3-16cp. 6-8cp. 1-32 <sup>5-40W</sup>	candle power requiring a total current of	6.75 Amperes
D Machinery	51 lights each of 7-16cp. 4-32cp. 40-40W	candle power requiring a total current of	22.5 Amperes
E Cargo & Blowers	44 lights each of 44-32	candle power requiring a total current of	46.0 Amperes
2 Mast head light with	1 lamps each of 16	candle power requiring a total current of	1.54 Amperes
2 Side light with	2 lamps each of 1-16cp. 1-32	candle power requiring a total current of	1.58 Amperes
5 Cargo lights of	6-32	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 On navigating indicator in Chart Room.

**DESCRIPTION OF CABLES.**

Main cable carrying 110 Amperes, comprised of 19 wires, each .084" S.W.G. diameter, .105 square inches total sectional area  
 Branch cables carrying 40 Amperes, comprised of 7 wires, each .0613" S.W.G. diameter, .02 square inches total sectional area  
 Branch cables carrying 12.25 Amperes, comprised of 7 wires, each .048" S.W.G. diameter, .0129 square inches total sectional area  
 Leads to lamps carrying 5.0 Amperes, comprised of 7 wires, each .022" S.W.G. diameter, .0032 square inches total sectional area  
 Cargo light cables carrying 6.0 Amperes, comprised of 27 wires, each .01" S.W.G. diameter, .002 square inches total sectional area

**DESCRIPTION OF INSULATION, PROTECTION, ETC.**

Rubber insulated, lead covered and armoured cables complying with Canadian underwriter requirements. 30% pure Para rubber being used for insulation. Lead covering 1/16" thick on small sizes increasing proportionately in the larger sizes.  
 Joints in cables, how made, insulated, and protected No joints in cables. All connections made in W.T. Junction boxes

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 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 Clipped to decks & bulkheads by double ended clips. Sheel sheel casing in bridge space.



**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 covered and armoured*

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

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

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

How are cables carried through beams *In lead bushings* through bulkheads, &c. *W.T. glands.* ✓

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 *By steel steel galvanized guards and in conduit.*

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 *Lamps in heavy cast fittings. Cables in conduit.*

Where are the main switches and fuses for these lights fitted *In distribution box.*

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 *Permanent to W.T. switch* How fixed *Flexible in clusters.*

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 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 *1500* 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.

*M. Miller* Electrical Engineers Date \_\_\_\_\_

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *96 ft.*

Distance between dynamo or electric motors and steering compass *93 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>6.75</i> Amperes	<i>12</i> feet from standard compass	<i>5</i> 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.

*M. Miller* Builder's Signature. Date \_\_\_\_\_

**GENERAL REMARKS.**

*This installation has been fitted on board the vessel. The materials and workmanship are good. It has been tried under steam at varying loads and found to be working satisfactorily.*

*It is submitted that*

*this vessel is eligible for THE RECORD Elec. light.*

*JWD 7/11/19*

*H. J. Alderson*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

JULY 11 1919

