

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1681.

Port of Montreal Date of First Survey Dec. 6. 1918 Date of Last Survey May 8. 1919 No. of Visits 9  
 No. in on the ~~Iron~~ or Steel S.S. "Canadian Pioneer" Port belonging to Montreal  
 Reg. Book Built at Montreal By whom Canadian Vickers Ltd When built 1919  
 Owners Canadian Government Merchant Marine Ltd. Owners' Address 230 St James St. Montreal  
 Yard No. 67 Electric Light Installation fitted by Canadian Vickers Ltd When fitted 1919

### DESCRIPTION OF DYNAMO, ENGINE, ETC.

10 K.W "Vickers" semienclosed dynamo direct connected to Goldis McCulloch enclosed, vertical, single cylinder, forced lubrication type engine

Capacity of Dynamo 91 Amperes at 110 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed Engine Room Whether single or double wire system is used Double  
 Position of Main Switch Board " " 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 Not used  
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 145 arranged in the following groups :-  
 A Fore Aft 68 lights each of 2-16 CP, 4-15W, 5-25W & 5-40W candle power requiring a total current of 23.5 Amperes  
 B Aft 34 lights each of 1-22 1/2 CP, 1-16 CP, 32-40W candle power requiring a total current of 12.25 Amperes  
 C Navigating 23 lights each of 8-22 1/2 CP, 3-16 CP, 6-8 CP, 1-32 CP, 5-40W candle power requiring a total current of 6.45 Amperes  
 D Eng & Bl. Rm 51 lights each of 4-16 CP, 4-32 CP, 40-40W candle power requiring a total current of 22.5 Amperes  
 E Cargo Space & Chute 44 lights each of 4-44-32 CP candle power requiring a total current of 46.0 Amperes  
 1 Mast head light with 1 lamps each of 16 CP candle power requiring a total current of .54 Amperes  
 2 Side light with 2 lamps each of 16 & 1-32 candle power requiring a total current of 1.58 Amperes  
 5 Chute Cargo lights of 6 each 32 candle power, whether incandescent or arc lights Incandescent

If arc lights, what protection is provided against fire, sparks, &c. No Arc lights fitted

Where are the switches controlling the masthead and side lights placed on Nav. Indicator in Chart-Rm (Bridge)

### 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 Amperes, comprised of 7 wires, each .022 S.W.G. diameter, .0032 square inches total sectional area  
 Cargo light cables carrying 6 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 & Armoured cables, complying with the Canadian Underwriters requirements, 30% pure Para rubber being used for insulation, lead covering to thick on small sizes, increasing proportionally on larger sizes  
 Joints in cables, how made, insulated, and protected No joints in cables. All connections made in W.T. 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 bunks, 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 and bulkheads by double ended clips and sheet steel 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 *Same*

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

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

How are cables carried through beams *in lead bushings* through bulkheads, &c. *WT glands*

How are cables carried through decks *WT Deck tube. Patent Admiralty type*

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 sheet steel galvanized guard plating & 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 heavily guarded, cables & Co*

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 WT sockets & receptacles* How fixed *& flexible to clusters*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Double wire*

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 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 "*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>6.45</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 26/6/19.*

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

Committee's Minute TUE. JUL. 1-1919

50,817-1 TRANSIOR



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