

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 41592

Port of Glasgow Date of First Survey 25.1.21 Date of Last Survey 9.12.21 No. of Visits 14  
 No. in Reg. Book 24726 on the Iron or Steel S.S. "Montcalm" Port belonging to Liverpool  
 Built at Clydebank By whom Messrs J. Brown & Co. Ltd. When built 1931  
 Owners Canadian Pacific Railway Owners' Address \_\_\_\_\_  
 Yard No. 464 Electric Light Installation fitted by Messrs J. Brown & Co. Ltd. When fitted 1931

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

3- 175 K.W. Dynamos driven by geared steam turbines TOTAL KW = 600  
 1- 75 K.W. Dynamo driven by Diesel Oil Engine  
 Capacity of Dynamo 3 each 1590 632 Amperes at 110 Volts, whether continuous or alternating current 2.5  
 Where is Dynamo fixed 3 at aft end of Engine Room Whether single or double wire system is used Double  
 Position of Main Switch Board at aft end of Engine Room having switches to groups See Continuation Sheet of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each 1- "C" Deck Forward 20 Switches, 1- "C" Deck Mid 17 Switches, 1- "C" Deck Aft 17 Switches 1- Boat Deck Mid 15 Switches.  
 If ~~fuses~~ <sup>Circuit Breakers</sup> 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 2875 arranged in the following groups:—

	lights each of	candle power requiring a total current of	Amperes
A			
B			
C			
D			
E			
2 Mast head light, with	1 lamp each of 32	candle power requiring a total current of	2.2 Amperes
2 Side light, with	1 lamp each of 32	candle power requiring a total current of	2.2 Amperes
14 Quaters	5-32 C.H.	candle power, whether incandescent or arc lights	Incandescent
9 Lanterns	500 Watt		

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

Where are the switches controlling the masthead and side lights placed Wheel House

## DESCRIPTION OF CABLES.

	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area
Main cable carrying				
Branch cables carrying				
Branch cables carrying				
Leads to lamps carrying				
Cargo light cables carrying	5.5 Amperes, comprised of 7 wires, each	0.044	S.W.G. diameter,	0.01 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Vulcanised india rubber Lead covered vulcanised india rubber Lead covered armoured by steel wires and braided, and paper insulated Lead covered

Joints in cables, how made, insulated, and protected No joints

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 \_\_\_\_\_

Are there any joints in or branches from the cable leading from dynamo to main switch board \_\_\_\_\_

How are the cables led through the ship, and how protected Clipped to steel plating or run in troughs



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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 In troughing in alleyways. In tubing in open.

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

What special protection has been provided for the cables near boiler casings Lead Covered Armoured and Braided

What special protection has been provided for the cables in engine room Lead Covered Armoured and Braided.

How are cables carried through beams through bulkheads, &c. Watertight Glands.

How are cables carried through decks Watertight Glands.

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 Lead Covered Armoured and Braided run on beams.

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 Totally enclosed when not in use.

Where are the main switches and fuses for these lights fitted Outside Bunker.

If in the spaces, how are they specially protected ---

Are any switches or fuses fitted in bunkers ---

Cargo light cables, whether portable or permanently fixed Permanent How fixed Clipped to steelwork.

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 Switchboards.

## 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.

*John Brown & Company Limited.*

*Appendix*

## COMPASSES.

Distance between dynamo or electric motors and standard compass 21 feet.

Distance between dynamo or electric motors and steering compass 11 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
1	1	1	1
9	38	18	18
20	48	28	28

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 7/16 degrees on any course in the case of the standard compass ---

*John Brown & Company, Limited.* any course in the case of the steering compass.

*Appendix*

## GENERAL REMARKS.

This installation has been fitted on board under special survey. Tested under full working conditions and found satisfactory. It is submitted that this vessel is eligible for THE RECORD. Elec. Light.

FREE - £46-10-0 of 16-12-21.

GLASGOW 27 DEC 1921

Committee's Minute

Elec. Light

Surveyor to Lloyd's Register of Shipping.

Rpt. 9a.

Port of

Glasgow.

Continuation of Report No. 41592 dated 9. 12. 21 on the

T.S.S. "MONTCALM."

	KW	AMPS	CABLE SIZE	AREA
GENERATOR NO 1	175	1590	3" x 1/2"	1.5"
" " " 2	"	"	"	"
" " " 3	"	"	"	"
EMERGENCY GENERATOR.	75	682	2-9/16"	1.2"

TOTAL KILOWATTS = 600

## PARTICULARS OF MAIN SWITCHBOARD.

	HP	LOAD AMPS	CABLE SIZE	AREA
BRINE PUMP	4.75	39	7/052	.0145
CO <sub>2</sub> COMPRESSOR	32	246	61/093	.4
TURNING MOTOR STAR <sup>ED</sup>	20	158	37/083	.2
STOKEHOLD FAN ST <sup>ED</sup> FORD	32	275	61/093	.4
" " " " APT	32	275	61/093	.4
WORKSHOP MOTOR	3	25	7/044	.01
TL DYN. + REFRIG FANS	13	107	19/083	.1
H.M. ANTI GORR + PUMPS	2	17.2	7/044	.01
ENGINE ROOM FAN STAR <sup>ED</sup>	7.5	63	19/064	.06
EMERGENCY SWITCHBOARD	—	590	127/103	1.
STOKEHOLD FAN PORT FORD	32	275	61/093	.4
" " " " APT.	32	275	61/093	.4
SANITARY PUMP NO 1	28	226	37/103	.3
" " " " NO 2	28	226	37/103	.3
TURNING MOTOR PORT.	20	158	37/083	.2
ENGINE ROOM FANS PORT.	7.5	63	19/064	.06
ENGINE ROOM LIFT MOTOR	5	40	7/064	.0225
AIR COMPRESSOR MOTOR.	9.5	75	19/064	.06
RING MAIN PORT.	—	930	2-127/103	2.
" " " " STAR <sup>ED</sup> .	—	950	2-127/103	2.

## PARTICULARS OF EMERGENCY SWITCHBOARD.

BOAT WINCHES APT.	—	330	61/103	.5
" " " " FORD	—	330	61/103	.5
WYLLIE DAVIT STAR <sup>ED</sup> APT	—	213	37/093	.25
" " " " FORD	—	213	37/093	.25
" " " " PORT APT	—	213	37/093	.25
" " " " FORD	—	213	37/093	.25
LIGHTING FORD	—	94	61/093	.4
" " " " APT.	—	100	37/083	.2
AIR COMP <sup>RESSOR</sup> + COOLER PUMP	—	30	19/052	.04
WORKSHOP M <sup>OTORS</sup> HUMMERS ETC.	—	81	19/064	.06
BILGE PUMP.	—	79	37/103	.3
BOAT L <sup>IFTS</sup> W/T DOORS ETC.	—	49	37/072	.15
WIRELESS.	—	30	19/064	.06

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