

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 13

Port of Toronto Date of First Survey 19/1/16 Date of Last Survey 27/6/16 No. of Visits  
 No. in Reg. Book on the ~~Iron~~ Steel Steamer Royalite Port belonging to Sarnia, Ont  
 Built at Collingwood Ont By whom Collingwood Shipbuilding Co When built 1916  
 Owners Imperial Oil Co. Limited Owners' Address Sarnia, Ont  
 Yard No. 45 Electric Light Installation fitted by Collingwood Shipbuilding Co When fitted 1916

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

1 General Electric Co. Direct current Generator of 12 kilowatts capacity direct-connected to Watt steam turbine built by Laddie-McCollough Co.

Capacity of Dynamo 96 Amperes at 125 Volts, whether continuous or alternating current continuous  
 Where is Dynamo fixed In Engine room Starboard side forward Whether single or double wire system is used double

Position of Main Switch Board Along side of Dynamo having switches to groups A, B, C, D, E, F, G, H, J, K of lights, &c., as below  
(outside after companionway)

Positions of auxiliary switch boards and numbers of switches on each A - Fore End of Engine room 6 switches, C - Pump 5 switches D - Texas 4 switches E - Pump Room 6 switches (outside companionway) F - Fore castle (after end starboard passage) 6 switches

G Navigation lights - Tell tale in Pilot House 6 switches J - Search Light - Pilot House 1 switch K - Cabins aft - In Starboard passage way 6 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 to reduction 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 to wire fuses

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

Total number of lights provided for 163 arranged in the following groups:—

A Engine Room	32 lights each of	16	candle power requiring a total current of	16	Amperes
B Boiler Room	to Storage Battery for Electric Whistle control.				
C Poop	43 lights each of	14 32 c.p. + 43 16	candle power requiring a total current of	22	Amperes
D Texas	20 " " " 2 fuses	16	" " " " " "	8 1/2	"
E Pump Room	13 lights each of	16	candle power requiring a total current of	6 1/2	Amperes
F Forecastle	20 " " " 2 fuses	16	" " " " " "	11	"
G Navigation	9 lights each of	32	candle power requiring a total current of	9	Amperes
H Pilot connection	to Automatic Electric Whistle control.				
I Search Light	lights each of	16	candle power requiring a total current of	44	Amperes
K Cabins aft	29 " " 22 fuses	16	" " " " " "	16 1/2	"
4 Mast head light with	1 pr lamps each of	32	candle power requiring a total current of	3	Amperes
2 Side light with	1 pr lamps each of	32	candle power requiring a total current of	2	Amperes
6 Cluster	Cargo lights of 6 of 16 c.p. = 96		candle power, whether incandescent or arc lights	Incandescent	

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

Where are the switches controlling the masthead and side lights placed In Pilot House

## DESCRIPTION OF CABLES.

Main cable carrying	96 Amperes, comprised of	19 wires, each	14 S.W.G. diameter,	.095 square inches total sectional area
Branch cables carrying	44 Amperes, comprised of	7 wires, each	16 S.W.G. diameter,	.022 square inches total sectional area
Branch cables carrying	22 Amperes, comprised of	7 wires, each	20 S.W.G. diameter,	.007 square inches total sectional area
Leads to lamps carrying	11 Amperes, comprised of	7 wires, each	18 S.W.G. diameter,	.0125 square inches total sectional area
" " " " " "	3 Amperes, comprised of	7 wires, each	22 S.W.G. diameter,	.0042 square inches total sectional area
Cargo light cables carrying	3 Amperes, comprised of	1 wires, each	16 S.W.G. diameter,	.0032 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

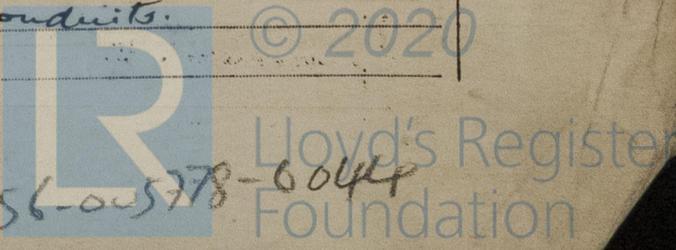
Rubber Covered Cable in galv. iron conduits Dynamo to main switch board  
 Rubber Covered Cable in galv. iron conduits Main switch board to junction boxes & from junction boxes to lamps

Joints in cables, how made, insulated, and protected all made at switches in junction 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 in galvanized iron conduits.



**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 Watertight Jabs.  
Iron conduits

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat In galv. Iron conduits

What special protection has been provided for the cables near boiler casings In galv. Iron conduits

What special protection has been provided for the cables in engine room In galv. Iron Conduits

How are cables carried through beams in conduits through bulkheads, &c. Run on Deck

How are cables carried through decks in conduits with water tight flanges

Are any cables run through coal bunkers Yes or cargo spaces No or spaces which may be used for carrying cargo, stores, or baggage Yes to lamps only

If so, how are they protected in galv. iron conduits under deck beams

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage Yes, vapour proof lamps

If so, how are the lamp fittings and cable terminals specially protected In vapour proof lamp base, conduits screwed into base

Where are the main switches and fuses for these lights fitted In panel switchboards outside of these spaces

If in the spaces, how are they specially protected not in spaces

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 Yes

Are any switches, fuses, or joints of cables fitted in the pump room or companion No, Panel switch board outside of Crisp way

How are the lamps specially protected in places liable to the accumulation of vapour or gas In vapour proof lamps

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 \_\_\_\_\_ 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 D. Letch*

Electrical Engineers

Date Aug 18th 1916

**COMPASSES.**

Distance between dynamo or electric motors and standard compass about 140 ft.

Distance between dynamo or electric motors and steering compass " 140 ft.

The nearest cables to the compasses are as follows:—

Cable	Amperes	Distance from standard compass	Distance from steering compass
A cable carrying <u>2 1/4</u>	<u>1</u>	<u>1</u> feet from standard compass	<u>1</u> feet from steering compass
A cable carrying <u>44</u>	<u>3</u>	<u>5</u> feet from standard compass	<u>5</u> feet from steering compass
A cable carrying <u>7</u>	<u>7</u>	<u>6</u> feet from standard compass	<u>6</u> feet from steering compass

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 3 1/2° E degrees on South course in the case of the standard compass and \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the steering compass.

*John D. Letch*

Builder's Signature.

Date Aug 18th 1916

**GENERAL REMARKS.**

The wiring on this vessel has been well done and is in accordance with the Rules. It is well insulated, and protected from damage. All joints in cables are made at junction panel switch boards.

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

*JWD 4/9/16*

*J.P. Benson*

Surveyor to Lloyd's Register of Shipping.

154116—Transfer.

Committee's Minute FRI. 17. NOV. 1916

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.