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# REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 4138

of *Philadelphia* Date of First Survey *17 Feb 1920* Date of Last Survey *18 March 1921* No. of Visits *91*  
on the ~~Iron~~ Steel *SS MOUNT CARROLL* Port belonging to *New York*  
Built at *Chester* By whom *Merchant Ship Bldg Corp* When built *1921*  
*Shawmut Steamship Company* Owners' Address *New York*  
No. *379* Electric Light Installation fitted by *Merchant Shipbuilding Corp* When fitted *1921*

## SECTION OF DYNAMO, ENGINE, ETC.

(3) *G. E. 25-KW. Compound wound Generators direct connected to reciprocating engines. One (1) 15 KW Generator direct connected to gasoline engine*  
No. of Dynamo *420* Amperes at *125* Volts, whether continuous or alternating current *Continuous*  
is Dynamo fixed *2nd Deck Main Engine Room* Whether single or double wire system is used *Double*  
No. of Main Switch Board *Generator Room* having switches to groups *18* of lights, &c., as below  
No. of auxiliary switch boards and numbers of switches on each

*See Continuation Sheet #1*

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*  
is *Yes* on the double wire system are fuses fitted to both flow and return wires of cables of all circuits including lamp circuits *Yes*  
e fuses of non-oxidizable metal *Yes* and constructed to fuse at an excess of *100%* per cent over the normal current  
fuses fitted in easily accessible positions *Yes* Are the fuses of standard dimensions *Yes* If wire fuses are used  
e permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit *Yes*  
switches and fuses constructed of incombustible materials and fitted on incombustible bases *Yes*  
number of lights provided for *643* arranged in the following groups:—

lights each of		candle power requiring a total current of	Amperes
lights each of		candle power requiring a total current of	Amperes
lights each of		candle power requiring a total current of	Amperes
lights each of		candle power requiring a total current of	Amperes
lights each of		candle power requiring a total current of	Amperes
Must head light with	<i>2</i> lamps each of <i>32</i>	candle power requiring a total current of <i>2</i>	Amperes
Side light with	<i>2</i> lamps each of <i>32</i>	candle power requiring a total current of <i>4</i>	Amperes
Cargo lights of	<i>80</i>	candle power, whether incandescent or arc lights <i>Incandescent.</i>	

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

are the switches controlling the masthead and side lights placed *Pilot House*

## SECTION OF CABLES.

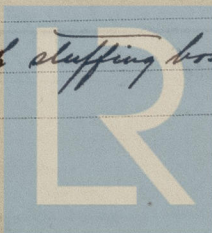
Cable carrying	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area
Cables carrying	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area
Cables carrying	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area
Lamps carrying	<i>263</i> Amperes, comprised of <i>1</i>	wires, each <i>1/16</i>	S.W.G. diameter, <i>10032</i>	square inches total sectional area
Light cables carrying	<i>2</i> Amperes, comprised of <i>40</i>	wires, each <i>29</i>	S.W.G. diameter, <i>003215</i>	square inches total sectional area

## SECTION OF INSULATION, PROTECTION, ETC.

*6 braided rubber covered (30% Pure Para) wire galvanized and sheathed conduit water tight and steam tight junction boxes*

cables, how made, insulated, and protected *Twist splices soldered and covered with rubber and iron tape*

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*  
any joints in or branches from the cable leading from dynamo to main switch board *No*  
the cables led through the ship, and how protected *Galvanized conduit with stuffing boxes*



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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 *Galvanized conduit with water tight and steam tight junction boxes*

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

What special protection has been provided for the cables near boiler casings *Galvanized conduit steam vapor proof*

What special protection has been provided for the cables in engine room *Galvanized conduit steam vapor proof*

How are cables carried through beams *Galvanized Conduit* through bulkheads, &c. *Galvanized Conduit*

How are cables carried through decks *Galvanized conduit*

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

If so, how are they protected *Galvanized conduit*

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 *Vapor proof fittings with steel fusible Talc Panel Pilot House*

Where are the main switches and fuses for these lights fitted *in panel boxes*

If in the spaces, how are they specially protected *Yes*

Are any switches or fuses fitted in bunkers *No*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *Yes*

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

How are the returns from the lamps connected to the hull *Yes*

Are all the joints with the hull in accessible positions *Yes*

Is the installation supplied with a voltmeter *Yes* and with an amperemeter *Yes* fixed *Main switch*

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 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 50 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 warrant that it is at this date in good order and safe working condition.

J.E.P. Grant, Chief Engineer, Merchant Shipbuilding Co. Ltd. Electrical Engineers  
Chester, Pa.

Date March 28<sup>th</sup> 1921

COMPASSES.

Distance between dynamo or electric motors and standard compass *100 ft.*

Distance between dynamo or electric motors and steering compass *110 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>1/4</i>	<i>2</i>	<i>2</i>	<i>2</i>
<i>30</i>	<i>12</i>	<i>15</i>	<i>15</i>

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 *Nil* degrees on *all* course in the standard compass and *Nil* degrees on *all* course in the case of the steering compass.

J.E.P. Grant, Chief Eng. Merchant Shipbuilding Co. Ltd. Builder's Signature. Date March 28<sup>th</sup> 1921

GENERAL REMARKS.

*This installation has been well fitted on board and proved satisfactory under trial*

*It is submitted that this vessel is eligible for THE RECORD. See Light*

*J.M. Kell 28/4/21 ELEC ST*

Committee's Minute

*J. Adamson*  
Surveyor to Lloyd's Register of Shipping

New York APR -5 1921

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4138

tion of auxiliary switch boards and number of switches on each Auxiliary

liary switch board boat deck bulkhead 115 Port - 11 switches

tribution Panel In 146 Upper deck 8 switches

"	"	59	"	8	"
"	"	115 2 <sup>nd</sup> Deck	"	8	"
"	"	189 Upper	"	10	"
"	"	152	"	12	"
"	"	43	"	12	"
"	"	Office Quarter	"	14	"
"	"	115 Shellin Deck	"	14	"
"	"		"	4	"

total number of lights provided for 641 arranged in the following groups:—

36 Lights, each of 16 candle power requiring a total current of 9 Amperes

47	"	16	"	"	"	"	"	"	12	"
43	"	16	"	"	"	"	"	"	11	"
64	"	16	"	"	"	"	"	"	16	"
50	"	16	"	"	"	"	"	"	13	"
86	"	16	"	"	"	"	"	"	22	"
79	"	16	"	"	"	"	"	"	20	"
22	"	16	"	"	"	"	"	"	31	"
14	"	16	"	"	"	"	"	"	29	"
	"		"	"	"	"	"	"	21	"
	"	# 105	"	"	"	"	"	"	21	"
	"	# 154	"	"	"	"	"	"	21	"
	"		"	"	"	"	"	"	50	"
	"		"	"	"	"	"	"	20	"
	"		"	"	"	"	"	"	15	"
	"		"	"	"	"	"	"	10	"
	"		"	"	"	"	"	"	15	"
	"		"	"	"	"	"	"	30	"

*169*



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Cable Carrying 366 Amperes comprised of 101 wires each  $\frac{1}{16}$  SWG dia 1.050 sq. total Sec area

"	"	9	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	12	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	11	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	16	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	13	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	29	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	22	"	"	7	"	$\frac{3}{19}$	"	"	.035	"	"	"	"	✓
"	"	20	"	"	7	"	$\frac{3}{20}$	"	"	.045	"	"	"	"	✓
"	"	31	"	"	7	"	$\frac{3}{20}$	"	"	.045	"	"	"	"	✓
"	"	21	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	21	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	21	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓
"	"	50	"	"	7	"	$\frac{3}{20}$	"	"	.045	"	"	"	"	✓
"	"	15	"	"	7	"	$\frac{3}{25}$	"	"	.0055	"	"	"	"	✓
"	"	10	"	"	7	"	$\frac{3}{25}$	"	"	.0055	"	"	"	"	✓
"	"	15	"	"	7	"	$\frac{3}{25}$	"	"	.0055	"	"	"	"	✓
"	"	15	"	"	7	"	$\frac{1}{16}$	"	"	.019	"	"	"	"	✓

15 KW Generator direct connected to gasoline Engine installed for emergency not considered as part of the Electric Installation



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