

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 25699

Port of Glasgow Date of First Survey July 1906 Date of Last Survey 23rd Aug 1907 No. of Visits 2  
 No. in Reg. Book on the Iron or Steel Turbin Steamer "Cusitania" Port belonging to Liverpool  
 Built at Glydebank By whom Messrs John Brown & Co. Limited When built 1907  
 Owners Cunard Steamship Company Owners' Address Liverpool  
 Yard No. 367 Electric Light Installation fitted by Messrs John Brown & Co. Limited 6 Bank When fitted 1907

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

4 Turbo Dynamos of the condensing type each of 375 Kilowatts normal output - at 115 Volts  
1200 Revs per min & suitable for 150 lbs steam pressure  
 Capacity of Dynamo 3409 Amperes at 115 Volts, whether continuous or alternating current continuous  
 Where ~~is~~ <sup>are</sup> Dynamo fixed in Dynamo Room Orlop Deck Whether single or double wire system is used double  
 Position of Main Switch Boards on aft bulkhead of Dynamo Room having switches to groups 11-750 Amp. circuit-breakers for 11 Lighting circuits of lights, etc., as below  
 Positions of auxiliary switch boards and numbers of switches on each Auxiliary Switchboards as follows: 1 on Orlop Deck  
10 on Shelter Deck, 1 on Upper Deck, 1 on Main Deck, 8 on Lower Deck, 2 in Engine Room. 11 of the above  
boards having each 7 switch and these branch circuits the remaining boards having from 9 to 3 these branches  
 If cut outs 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 cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits yes  
 Are the cut outs of non-oxidizable metal yes and constructed to fuse at an excess of 50 per cent over the normal current  
 Are all cut outs 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  
 Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases yes  
 Total number of lights provided for 5,651 arranged in the following groups:—  
 A lights each of candle power requiring a total current of Amperes  
 B lights each of candle power requiring a total current of Amperes  
 C lights each of candle power requiring a total current of Amperes  
 D lights each of candle power requiring a total current of Amperes  
 E lights each of candle power requiring a total current of Amperes  
2 Mast head lights with 1 lamp each of 32 candle power requiring a total current of 2.2 Amperes  
2 Side lights with 1 lamp each of 32 candle power requiring a total current of 2.2 Amperes  
24-6 Light Cargo lights of 2,304 candle power, whether incandescent or arc lights Incandescent  
 If arc lights, what protection is provided against fire, sparks, &c.

Where are the switches controlling the masthead and side lights placed in Masthead Indicator in Wheel House on Bridge

## DESCRIPTION OF CABLES.

Main cable carrying 532 Amperes, comprised of 192 wires, each 14 L.S.G. diameter, .96 square inches total sectional area  
 Branch cables carrying 38.9 Amperes, comprised of 19 wires, each 16 L.S.G. diameter, .06 square inches total sectional area  
 Branch cables carrying 70 Amperes, comprised of 37 wires, each 14 L.S.G. diameter, .18 square inches total sectional area  
 Leads to lamps carrying .58 Amperes, comprised of 1 wires, each 16 L.S.G. diameter, .003 square inches total sectional area  
 Cargo light cables carrying 3.4 Amperes, comprised of 7 wires, each 20 L.S.G. diameter, .007 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Conductors of tinned copper wire insulated with pure and vulcanized India rubber and  
taped the whole vulcanized together then taped and braided the main cables are further  
protected by asbestos fire resisting material. Also vulcanized india rubber braided & lead covered  
 Joints in cables, how made, insulated, and protected Joints made in fire resisting main cables made by the  
cable manufacturer

Are all the joints of cables thoroughly soldered, resin only having been used as a flux 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 Cables from switch board are led along Port & Starboard side of  
Engine Room thence along Port & Starboard side of Dunker bulkhead in Boiler Room. In each case these cables  
are fled up Engine & Boiler Room vents to their respective auxiliary boards. Cables carried on porcelain  
insulators on iron racks and the whole covered in with sheet iron.



TUES. 24 SEP 1907

Port of *Glasgow*.Continuation of Report No. *25699* dated *23 August 07* on the "*Lustania*"

## 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*

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 *in rising compound round cables*

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

How are cables carried through beams *Lead females* through bulkheads, &c. *Watertight glands*

How are cables carried through decks *Watertight-deck tubes*

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

If so, how are they protected *Lead covered and armoured*

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 *Cast iron covers*

Where are the main switches and cut outs for these lights fitted *on shelter deck*

If in the spaces, how are they specially protected

Are any switches or cut outs 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

The installation is supplied with *4* voltmeters and *8* amperemeters, fixed on *Switchboard*

## VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas

Are any switches, cut outs, 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 *98* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *2,500* megohms per statute mile after 24 hours' immersion in seawater.

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.*

## COMPASSES.

*J. Henderson* Electrical Engineers Date *23*

Distance between dynamo *electric motors* and standard compass *466'* Motor *20'*

Distance between dynamo *electric motors* and steering compass *487'* Motor *42'*

The nearest cables to the compasses are as follows:—

A cable carrying	Ampères	feet from standard compass	feet from steering compass
<i>54</i>	<i>8'</i>	<i>11'</i>	<i>11'</i>
<i>9.8</i>	<i>8'</i>	<i>11'</i>	<i>11'</i>
<i>2.5</i>	<i>12'</i>	<i>11'</i>	<i>11'</i>

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

*John Brown & Company, Limited.*

*J. Henderson* Builder's Signature. Date

## GENERAL REMARKS.

*This instalation has been well fitted on board and when examined under ordinary working conditions was satisfactory.*

*A.M. McLean & James Hollison*

Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

*Glasgow 23 SEP 1907*

*Alfred Electric Light*

*It is submitted that the Record Rec. be noted in the Register Book.*

LETTER OF CIRCUIT	DESCRIPTION OF CIRCUIT	No OF LIGHTS			CURRENT ON MAINS
		32 CP	16 CP + TANTALUM	8 CP + HUNTAITE	
A	Fixed Draught Fans				520
B	Lights, Heaters, Frids, Thermostats	261	176		337.4
C	Lights, Thermostats, Lifts, Reelers	204			197.3
D	Fixed Draught Fans				520
E	Lights, Fans, Heaters	480	223		367
F	Boat Hoists, Passenger Lifts				505
G	2-12 Oct. Cans, Hoist, Hoist				564
H	Turning Motors, Lifting Motors + Fans				1264
I	Lighting + Fans	432			781.5
J	Fixed Draught Fans				520
K	Lights, Heaters, Thermostats	639	31		581
L	Fixed Draught Fans				520
M	Lights, Fans	431			638.9
N	Lights, Thermostats	597	298		582.7
O	Fixed Draught Fans				520
P	do do do				520
Q	Lights, Heaters + Thermostats	557	91		509.8
R	Fixed Draught Fans				520
S	Lights, Thermostats	4	272		532.8
T	Refrigerating Machinery				670
U	Fixed Draught Fans				520
V	Lights, Thermostats	1	571	24	654
W	Lights, Thermostats	191	168		418.7
X	Boat Hoists, Frids, Knife Cleaners				621
		5	4635	1011	
		Total 5,651			

*J. Henderson*

*A.M. McLean & James Hollison*