

REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 83637

Port of **LIVERPOOL** Date of First Survey *17th March/22* Date of Last Survey *18th April/22* No. of Visits *17*
 No. in Reg. Book on the ~~Lea~~ **Steel** T.S.S. "**S. MARIA**" Port belonging to
 Built at **Birkenhead** By whom **Cammell Laird & Co. Ltd.** When built **1922**
 Owners **Cunard Steam Ship Co. Ltd.** Owners' Address **Liverpool**
 Yard No. **836** Electric Light Installation fitted by **Sunderland Forge & Engineering Co. Ltd.** When fitted **1922.**

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 - 375 K.W. 110/220 volts 3 wire turbo generating sets complete with gearing, generator arranged with static balancers. - 1 - 36 K.W. Emergency Generating set -do- (164 amps at 220 volts)
 Capacity of Dynamos each **1700** Amperes at **220** Volts, whether continuous or alternating current **Continuous**
 Where is Dynamo fixed **in Engine Room & Emergency** Dynamo Whether single or double wire system is used **Double**
 Position of Main Switch Board **In Engine Room** Room. having switches to groups **14** of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each **"A" Board "D" deck 27 switches, "B" board "D" deck 21 switches, "C" board "D" deck 23 switches, "D" board "D" deck 43 switches, "E" board Boat Deck 13 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 **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 **3110** arranged in the following groups :-

Board	Number of lights	Description	Candle power	Amperes
A	606	lights each of 16 cp & 1 at 32	1265.9	Amperes
B	712	lights each of 16 cp & 5 at 32	539.5	Amperes
C	840	lights each of 16	228.0	Amperes
D	731	lights each of 16 cp & 1 at 32	1011.9	Amperes
E	12	lights each of 16 cp & 4 at 2000	257.0	Amperes
2	1	Must head lights with 1 lamps each of 32	1.2	Amperes
2	1	Side lights with 1 lamp each of 32	1.2	Amperes
14	6	Cargo lights of 6 lights each at 16	Incandescent	

If arc lights, what protection is provided against fire, sparks, &c. **-**
 Where are the switches controlling the masthead and side lights placed **In Navigating house**

DESCRIPTION OF CABLES.

Main cable carrying **1700** Amperes, comprised of **4 cables in parallel 91** wires, each **0.103"** S.W.G. diameter, **3.0** square inches total sectional area
 Branch cables carrying **228** Amperes, comprised of **61** wires, each **0.093"** S.W.G. diameter, **0.4** square inches total sectional area
 Branch cables carrying **7** Amperes, comprised of **7** wires, each **0.036** S.W.G. diameter, **.007** square inches total sectional area
 Leads to lamps carrying **1.8** Amperes, comprised of **3** wires, each **.029"** S.W.G. diameter, **.002** square inches total sectional area
 Cargo light cables carrying **3.3** Amperes, comprised of **70** wires, each **.0076"** S.W.G. diameter, **.003** square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Finned copper conductors insulated with pure and vulcanised india rubber, taped, braided and the whole vulcanised together and finished in Accommodation - Braided and compounded.
in Machinery spaces etc. - Lead covered armoured and braided
 Joints in cables, how made, insulated, and protected **None fitted**
 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 **No**
 How are the cables led through the ship, and how protected **On porcelain insulators in false ceiling along "D" deck starboard passage.**



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
Vulcanised india rubber cables drawn into galvanised iron piping made watertight

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

What special protection has been provided for the cables near boiler casings Leads 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 Holes bushed with fibre through bulkheads, &c. W.F. packing glands

How are cables carried through decks In deck tubes made watertight

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 Vulcanised india rubber cables drawn into galvanised iron piping.

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 fuses for these lights fitted at Distribution boxes on deck above

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 Portable How fixed In Watertight boxes

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 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 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 volt 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.

P. Pro The Sunderland Forge & Eng. Co. Ltd.

R. H. Gough

Electrical Engineers

Date 26th April, 1922

COMPASSES.

Distance between dynamo or electric motors and standard compass 20 feet

Distance between dynamo or electric motors and steering compass 16 feet

The nearest cables to the compasses are as follows:—

A cable carrying	<u>10</u>	Ampères	<u>15</u>	feet from standard compass	<u>10</u>	feet from steering compass
A cable carrying	<u>0.3</u>	Ampères	<u>3</u>	feet from standard compass	<u>3</u>	feet from steering compass
A cable carrying		Ampères		feet from standard compass		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 Nil degrees on --- course in the case of the standard compass and Nil degrees on --- course in the case of the steering compass.



J. W. ...

Builder's Signature.

Date

MAY 1922

GENERAL REMARKS.

The electric light installation has now been fitted on board in accordance with the rules and standards under. Full working condition was found satisfactory in every respect. It is eligible in our opinion for modification "Electric light"

Ver. 51-3-0

Elec. Light. 24/5/22

John Dykes & Dwyer
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

LIVERPOOL

Electric Light. 77A



© 2020 Lloyd's Register Foundation