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ELECTRICAL ENGRS CO LD  
28 MAR 99  
NEW SQUARE  
EDINBURGH

Received at London Office

# REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 16909

Port of Glasgow Date of First Survey ✓ Date of Last Survey ✓ No. of Visits ✓  
 No. in on the Iron or Steel S. S. Eastern Port belonging to London  
 Reg. Book Built at Govan, Glasgow By whom Robert Napier & Sons Ltd When built 1899  
 Owners Eastern & Australian S.S. Co Ltd Owners' Address \_\_\_\_\_  
 Yard No. 465 Electric Light Installation fitted by \_\_\_\_\_ When fitted 1899

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 "Bosch. Lalandi" engines direct coupled to 2 "Tutoria" dynamos running at 250 Revs. per min.  
 Capacity of Dynamo 200 Amperes at 100 Volts, whether continuous or alternating current direct.  
 Where is Dynamo fixed Alongside main engines.  
 Position of Main Switch Board Beside dynamo having switches to groups 10 Main groups of lights, &c., as below  
 Positions of auxiliary <sup>fuse</sup> boards and numbers of <sup>fuses</sup> on each N<sup>o</sup> 1. Fo'castle - 8 way. - N<sup>o</sup> 2. Wheel House 6 way - N<sup>o</sup> 3 & 4. 1<sup>st</sup> Cl. Passenger corridor - 12 way. - N<sup>o</sup> 5 & 6. Engineers Mess - 6 way. - N<sup>o</sup> 7. Engine Room - 8 way. - N<sup>o</sup> 8 & 9. European Storage - 12 way. N<sup>o</sup> 10. Main switch. Searchlight  
 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 no reduction 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 \_\_\_\_\_ arranged in the following groups :-

A Fo'castle	30 lights each of	16	candle power requiring a total current of	15	Amperes
B Steering Room	11 lights each of	16	candle power requiring a total current of	6	Amperes
C 1 <sup>st</sup> Class	75 lights each of	16	candle power requiring a total current of	38	Amperes
D Engineers Mess	42 lights each of	16	candle power requiring a total current of	21	Amperes
E Engine room	41 lights each of	16	candle power requiring a total current of	21	Amperes
European Storage	61	16	32	31	Amperes
2 Mast head light with	1 lamps each of	32	candle power requiring a total current of	2	Amperes
2 Side light with	1 lamps each of	32	candle power requiring a total current of	2	Amperes
4 Cargo lights of	8 lamps of	16	candle power, whether incandescent or arc lights	Incandescent.	

If are lights, what protection is provided against fire, sparks, &c. 1 Admiralty type projector, taking a current of 100 A & enclosed in metal case.  
 Where are the switches controlling the masthead and side lights placed On board in steering house.

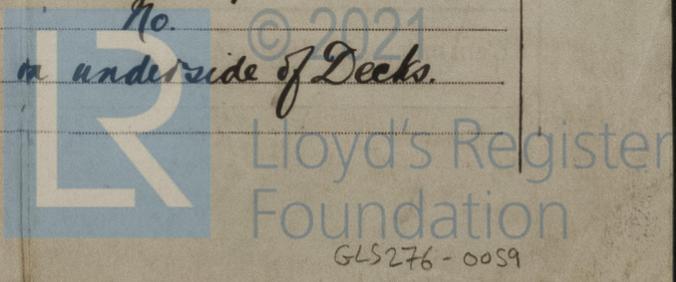
## DESCRIPTION OF CABLES.

Main cable carrying 150 Amperes, comprised of 37 wires, each 15 L.S.G. diameter, .15441 square inches total sectional area  
 Branch cables carrying 45 Amperes, comprised of 19 wires, each 14 L.S.G. diameter, .04783 square inches total sectional area  
 Branch cables carrying 22 Amperes, comprised of 7 wires, each 16 L.S.G. diameter, .02299 square inches total sectional area  
 Leads to lamps carrying 3 Amperes, comprised of 3 wires, each 20 L.S.G. diameter, .0031 square inches total sectional area  
 Cargo light cables carrying 5 Amperes, comprised of 1/2 wires, each \_\_\_\_\_ L.S.G. diameter, \_\_\_\_\_ square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

The conductors covered first with a layer of pure Para Rubber, then with two coats of Vulcanizing India Rubber, & finally covered with an India Rubber coated Tape, & the whole vulcanized, - An insulation resist of 600 Megohms and braided  
 Joints in cables, how made, insulated, and protected soldered with resin, insulated with pure rubber tape, and protected with tape

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 In wood casing on underside of Decks.



**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 Casing & conductors well coated with shellac

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

What special protection has been provided for the cables near boiler casings

What special protection has been provided for the cables in engine room } Run in iron piping.

How are cables carried through beams holes insulated with wood through bulkheads, &c.

How are cables carried through decks in watertight glands.

Are any cables run through coal bunkers Yes or cargo spaces Yes or spaces which may be used for carrying cargo, stores, or baggage Yes

If so, how are they protected Heavy casing

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

If so, how are the lamp fittings and cable terminals specially protected

Where are the main switches and cut outs for these lights fitted at Distribution box

If in the spaces, how are they specially protected

Are any switches or cut outs fitted in bunkers

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

**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 installation is also supplied with 2 voltmeters and two amperemeters fixed on switch board in engine room.

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 600 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.

THE BRUSH ELECTRICAL ENGINEERING COMPANY, LIMITED

H. L. Brown

Electrical Engineers

Date



**COMPASSES.**

Superintendent for Scotland.

Distance between dynamo or electric motors and standard compass

Distance between dynamo or electric motors and steering compass } 120 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>100.</u>	Amperes	<u>18</u>	feet from standard compass	<u>7</u>	feet from steering compass
A cable carrying	<u>9</u>	Amperes	<u>9</u>	feet from standard compass	<u>8</u>	feet from steering compass
A cable carrying		Amperes		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 no degrees on no course in the case of the standard compass and no degrees on no course in the case of the steering compass.

Builder's Signature. Date 6<sup>th</sup> April 1899

**GENERAL REMARKS.**

John McAnulty.

The electric lighting of this vessel has been satisfactorily carried out, the materials & workmanship are good & the installation has been tried under full power.

H. Gordon Smith.

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

Committee's Minute

This installation appears to be fitted in accordance with the rule

REPORT FORM No. 12.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

