

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of Belfast Received at London Office 18
 No. 4430 *
 No. in Name of Ship "Copack" Built at Belfast When built 1894-10 mo.
 Reg. Book. 4dup
 Electric Light Installation fitted by Paterson & Co. Ltd. London & Glasgow when fitted October 1894

DESCRIPTION OF DYNAMO AND ENGINE.—

Direct acting engine & dynamo running at a speed of 350 revolutions per minute; Barwell
Kindley Engine & Phoenix Dynamo

Capacity of Dynamo 50 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Bottom platform in Engine Room Starboard side

LAMPS.—

Is vessel wired on single or double wire system Double Total number of lights 64 arranged in the following groups:—

A	<u>6</u> lights each of <u>2 of 16 & 4 of 8</u>	candle power requiring a total current of <u>2.4</u>	Amperes
B	<u>24</u> lights each of <u>16</u>	candle power requiring a total current of <u>14.4</u>	Amperes
C	<u>5</u> lights each of <u>16</u>	candle power requiring a total current of <u>3</u>	Amperes
D	<u>14</u> lights each of <u>16</u>	candle power requiring a total current of <u>10.2</u>	Amperes
E	lights each of	candle power requiring a total current of	Amperes
<u>One</u>	<u>one double filament lamp</u> Mast head light with <u>1</u> lamp each of <u>32</u>	candle power requiring a total current of <u>1.2</u>	Amperes
<u>Two</u>	<u>one double filament lamp each</u> Side light with <u>2</u> lamps each of <u>32</u>	candle power requiring a total current of <u>2.4</u>	Amperes
<u>Four</u>	Cargo lights of <u>96</u>	candle power <u>each</u> whether incandescent or arc lights <u>Incandescent</u>	

If arc lights, what protection is provided against fire, sparks, &c. None

SWITCHES AND CUT-OUTS.—

Position of Main Switch Board on Bulkhead close to Dynamo having switches to groups A. B. C. D of lights as above

Positions of other switch boards and numbers of switches on each

If cut outs are fitted to main circuit Yes and to each auxiliary circuit Yes

and at each position where cable is branched or reduced in size Yes

If vessel is wired on the double wire system are cut outs fitted on each wire No; on one wire only except on main & terminal branches where they are fitted on each wire

Are the cut outs of non-oxidizable metal Yes; of tin 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

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

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

Are all switches and cut-outs constructed of unflammable materials and fitted on unflammable bases Yes; porcelain

DESCRIPTION OF CABLES.—

Main cable carrying <u>50</u>	Amperes, comprised of <u>19/26</u>	wires, each <u>16</u>	legal standard wire gauge diameter
Branch cables carrying <u>22.9</u>	Amperes, comprised of <u>4</u>	wires, each <u>16</u>	legal standard wire gauge diameter
Branch cables carrying <u>4.4</u>	Amperes, comprised of <u>4</u>	wires, each <u>22</u>	legal standard wire gauge diameter
Leads to lamps <u>1.8</u>	Amperes, comprised of <u>1</u>	wires, each <u>18</u>	legal standard wire gauge diameter
Cargo light cables carrying <u>3.6</u>	Amperes, comprised of <u>4</u>	wires, each <u>24</u>	legal standard wire gauge diameter

The copper used has a conductivity of 98 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 800 megohms per statute mile after 24 hours' immersion in seawater



DESCRIPTION OF INSULATION, PROTECTION, &c.—

Insulation of pure rubber, vulcanised rubber, rubber tape covering then vulcanised together.
Braided & covered with preservative compound.

Joints in cables, how made, insulated, and protected. Soldered with resin. Insulated with two layers pure rubber strip, coating of india rubber solution, two layers india rubber prepared tape, another coating of india rubber solution then varnished.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux. Yes

How are cables led throughout the ship. Cables for raft run through the tween decks in galvanised iron pipes. Cables in Stateroom Saloon etc in double grooved wood casing.

What special protection has been provided for the cables in open alleyways. No cables run in open alleyways.

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

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

What special protection has been provided for the cables in engine room. Extra heavy double grooved wood casing blocked off bulkheads.

How are cables carried through decks. Brass deck tubes lined with teak and through bulkheads. Teak wood plug.

Are any cables run through coal bunkers. No or cargo spaces. Yes If so, how are they protected. Galvanised iron pipes.

Are any lamps fitted in coal bunkers or spaces which may be used for cargo. Two in cargo space on main deck amidship.

If so, how are they specially protected. Heavy cast iron hinged shutters.

Cargo light cables, whether portable or permanently fixed. Portable. How fixed. To terminal boxes & switch in heavy iron connector box.

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.

TESTING, &c.—

Has the installation been thoroughly tested to its full capacity during a trial of 24 hours' duration. Yes

The insulation resistance of the whole installation was not less than 500,000 ohms. Yes

The installation is supplied with a voltmeter and an amperemeter, fixed on Switchboard.

General Remarks.—

The whole installation is fitted with the best material & workmanship & carried out to the Rules of Fire Insurance Coys as in land installations & in accordance with the suggestions issued by Lloyd's Committee.

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.

Pro PATERSON & COOPER,

A. George Tidd

SUPT. ENG. & MANAGER.

Electrical Engineers

Date 26/10/94

COMPASSES.—

Distance between dynamo and standard compass. 75 ft

Distance between dynamo and steering compass. 72' 6"

The nearest cables to the compasses are as follows:—

Double wiring throughout.

A cable carrying Amperes feet from standard compass feet from steering compass

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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 degrees on course in the case of the standard compass

and degrees on course in the case of the steering compass.

Builder's Signature

Date

A. L. Jones

Surveyor's Signature

Date

31st Feb 1894



Lloyd's Register Foundation