

# REPORT ON ELECTRIC LIGHTING INSTALLATION.

Received at London Office 18

No. 4430 \*  
 Port of Belfast  
 Name of Ship "Copack" Built at Belfast When built 1894-10 mo.  
 Reg. Book. 4dup  
 Electric Light Installation fitted by Paterson Hooper 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 Lindley 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	6 lights each of	2 of 16 & 4 of 8	candle power requiring a total current of	2.4	Amperes
B	24 lights each of	16	candle power requiring a total current of	14.4	Amperes
C	5 lights each of	16	candle power requiring a total current of	3	Amperes
D	14 lights each of	16	candle power requiring a total current of	10.2	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>	<u>Amperes</u>
<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>	<u>Amperes</u>
<u>Four</u>	Cargo lights of	<u>46</u>	candle power <sup>each</sup> 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 horizontal 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 thin 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 thin 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 are run through the tween decks in galvanised iron  
pipes. cables in stoke room 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 fuses & 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 Fidd

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

A cable carrying \_\_\_\_\_ Amperes \_\_\_\_\_ feet from standard compass \_\_\_\_\_ 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

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 31<sup>st</sup> Feb 1894



Lloyd's Register  
Foundation