

# REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of

*Belfast*

THURS. 16 JUN 1892

Received at London Office

18

No. *4107 (continued)*

No. in

Name of Ship

*Lord Erne*

Built at

*Belfast*

When built

*1892*

Reg. Book.

Electric Light Installation fitted by

when fitted

## DESCRIPTION OF DYNAMO AND ENGINE.—

2 *Compound wound inserted horseshoe type of field with ring armature direct drive by Allen's single cylinder steam double acting class of vertical engine at 250 revs.*

Capacity of Dynamo *1000* *90* Amperes at *60* Volts, whether continuous or alternating current *Continuous*

Where is Dynamo fixed *aft end of starting platform below rears leading to tunnels*

## LAMPS.—

Is vessel wired on single or double wire system *single* Total number of lights *139* arranged in the following groups:—

A	<i>Projector</i>	<i>1</i>	<i>lamp for lights each of 400 beam purpose</i>	candle power requiring a total current of <i>about 50</i>	Amperes
B	<i>Forecasts</i>	<i>31</i>	lights each of <i>16</i>	candle power requiring a total current of <i>31</i>	Amperes
C	<i>Peep</i>	<i>34</i>	lights each of <i>16</i>	candle power requiring a total current of <i>34</i>	Amperes
D	<i>Bridge</i>	<i>38</i>	lights each of <i>16</i> <i>each equal to 3 of 32</i>	candle power requiring a total current of <i>41</i>	Amperes
E	<i>Engines</i>	<i>36</i>	lights each of	candle power requiring a total current of <i>36</i>	Amperes
	<i>Master head light with</i>	<i>1</i>	lamps each of <i>32</i>	candle power requiring a total current of <i>2</i>	Amperes
	<i>2 Side light with</i>	<i>1</i>	lamps each of <i>32</i>	candle power requiring a total current of <i>4</i>	Amperes
	<i>6</i>	<i>Cargo lights of 8 x 16</i>	<i>128</i>	candle power, whether incandescent or arc lights <i>incandescent</i>	

If arc lights, what protection is provided against fire, sparks, &c.

*Glass globe & guard*

## SWITCHES AND CUT-OUTS—

Position of Main Switch Board *Starting platform* having switches to groups *A, B, C, D, E* of lights as above

Positions of other switch boards and numbers of switches on each *1 sub-board in engine room, 9 1 sub-board in forecast bridge*

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 *if sufficient reduced to require same*

If vessel is wired on the double wire system are cut outs fitted on each wire

Are the cut outs of non-oxidizable metal *Tin* and constructed to fuse at an excess of *about 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*

## DESCRIPTION OF CABLES.—

Main cable carrying	<i>40</i>	Amperes, comprised of	<i>34</i>	wires, each	<i>16</i>	legal standard wire gauge diameter
Branch cables carrying	<i>30</i>	Amperes, comprised of	<i>29</i>	wires, each	<i>16</i>	legal standard wire gauge diameter
Branch cables carrying	<i>31 to 38</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>14</i>	legal standard wire gauge diameter
Leads to lamps	<i>218</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>16 to 18</i>	legal standard wire gauge diameter
Cargo light cables carrying	<i>8</i>	Amperes, comprised of	<i>225</i>	wires, each	<i>16</i>	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 *2000* *2400* megohms per statute mile after 24 hours' immersion in seawater





# DESCRIPTION OF INSULATION, PROTECTION, &c.—

Finished copper, 1 layer pure, 2 ditto vulcanising black white, 1 do proof tape the whole vulcanised & finally covered by 4 compounded braids of hemp.

Joints in cables, how made, insulated, and protected *beams soldered, resin being the flux, & reinsulated with one layer felt tape, 2 layers pure rubber solution, 1 layer prepared tape or of white ditto & final varnishing.*

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

How are cables led throughout the ship *in wood casing, except in Engine Room, where armoured cable are clipped to bulkheads.*

What special protection has been provided for the cables in open alleyways *Strong casings.*

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 *Armoured*

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

How are cables carried through decks *galv<sup>d</sup> iron deck plates* and through bulkheads *felt & ferrule.*

Are any cables run through coal bunkers *no* or cargo spaces *yes* If so, how are they protected *run in channel iron where possible, elsewhere between beams, with strong wood covers to casing.*

Are any lamps fitted in coal bunkers or spaces which may be used for cargo *no*

If so, how are they specially protected

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 *through hold down bolts & similar entree*

How are the returns from the lamps connected to the hull *soldered to 3/8 brass white screw*

Are all the joints with the hull in accessible positions *yes.*

## TESTING, &c.—

Has the installation been thoroughly tested to its full capacity during a trial of \_\_\_\_\_ hours' duration

The insulation resistance of the whole installation was not less than \_\_\_\_\_ ohms

The installation is *yes* supplied with a voltmeter and *no* an amperemeter, fixed *switchboard.*

## General Remarks.—

*The wiring was substantially similar to the S. S. Pindar & the S. S. Maharatta.*

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.

*N. H. Allen & Co. York & North London*

Electrical Engineers

Date *June 1892*

## COMPASSES.—

Distance between dynamo and standard compass } *about 80 feet.*  
Distance between dynamo and steering compass }

The nearest cables to the compasses are as follows:—

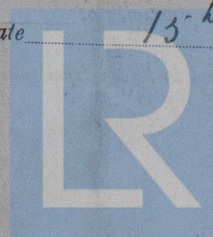
A cable carrying	Amperes	feet from standard compass	feet from steering compass
4	14	14	
25	36	36	

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 \_\_\_\_\_

Surveyor's Signature \_\_\_\_\_ Date *15<sup>th</sup> June 1892*



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